

US price list

ABB Automation Solutions
Motion Control and PLC Products

Power and productivity
for a better world™

US District Sales Offices

ARIZONA
PHOENIX
4211 S. 43RD PLACE
PHOENIX, AZ 85040
PHONE: 602-470-0407
FAX: 602-470-0464

ARKANSAS
CLARKSVILLE
706 WEST MAIN STREET
CLARKSVILLE, AR 72830
PHONE: 479-754-9108
FAX: 479-754-9205

CALIFORNIA
LOS ANGELES
6480 FLOTILLA STREET
COMMERCE, CA 90040
PHONE: 323-724-6771
FAX: 323-721-5859

HAYWARD
21056 FORBES STREET
HAYWARD CA 94545
Phone: 510-785-9900
Fax: 510-785-9910

COLORADO
DENVER
3855 FOREST STREET
DENVER, CO 80207
PHONE: 303-623-0127
FAX: 303-595-3772

CONNECTICUT
WALLINGFORD
65 SOUTH TURNPIKE ROAD
WALLINGFORD, CT 06492
PHONE: 203-269-1354
FAX: 203-269-5465

FLORIDA
TAMPA / PUERTO RICO / VIRGIN ISLANDS
3906 EAST 11TH AVENUE
TAMPA, FL 33605
PHONE: 813-248-5078
FAX: 813-241-9514

GEORGIA
ATLANTA
62 TECHNOLOGY DRIVE
ALPHARETTA, GA 30005
PHONE: 770-772-7000
FAX: 770-772-7200

ILLINOIS
CHICAGO
340 REMINGTON BOULEVARD
BOLINGBROOK, IL 60440
PHONE: 630-296-1400
FAX: 630-226-9420

INDIANA
INDIANAPOLIS
5525 W. MINNESOTA STREET
INDIANAPOLIS, IN 46241
PHONE: 317-246-5100
FAX: 317-246-5110

IOWA
DES MOINES
1943 HULL AVENUE
DES MOINES, IA 50313
PHONE: 515-263-6929
FAX: 515-263-6515

MARYLAND
BALTIMORE
7071A DORSEY RUN ROAD
ELKRIDGE, MD 21075
PHONE: 410-579-2135
FAX: 410-579-2677

MASSACHUSETTS
BOSTON
6 PULLMAN STREET
WORCESTER, MA 01606
PHONE: 508-854-0708
FAX: 508-854-0291

MICHIGAN
DETROIT
5993 PROGRESS DRIVE
STERLING HEIGHTS, MI 48312
PHONE: 586-978-9800
FAX: 586-978-9969

MINNESOTA
MINNEAPOLIS
13098 GEORGE WEBER DR, SUITE 400
ROGERS, MN 55374
PHONE: 763-428-3633
FAX: 763-428-4551

MISSOURI
ST. LOUIS
13678 LAKEFRONT DRIVE
EARTH CITY, MO 63045
PHONE: 314-373-3032
FAX: 314-373-3038

KANSAS CITY
9810 INDUSTRIAL BLVD.
LENEXA, KS. 66215
PHONE: 816-587-0272
FAX: 816-587-3735

NEW YORK
AUBURN
ONE ELLIS DRIVE
AUBURN, NY 13021
PHONE: 315-255-3403
FAX: 315-253-9923

NORTH CAROLINA
GREENSBORO
1220 ROTHERWOOD ROAD
GREENSBORO, NC 27406
PHONE: 336-272-6104
FAX: 336-273-6628

OHIO
CINCINNATI
2929 CRESCENTVILLE ROAD
WEST CHESTER, OH 45069
PHONE: 513-771-2600
FAX: 513-772-2219

OHIO (continued)
CLEVELAND
8929 FREEWAY DRIVE
MACEDONIA, OH 44056
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FAX: 330-468-4778

OKLAHOMA
TULSA
5555 E. 71ST STREET SUITE 9100
TULSA, OK 74136
PHONE: 918-366-9320
FAX: 918-366-9338

OREGON
PORTLAND
16201 SE 98TH AVENUE
CLACKAMAS, OR 97015
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FAX: 503-691-9012

PENNSYLVANIA
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103 CENTRAL AVENUE SUITE 400B
MOUNT LAUREL, NJ 08054
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FAX: 856-840-0811

PITTSBURGH
159 PROMINENCE DRIVE
NEW KENSINGTON, PA 15068
PHONE: 724-889-0092
FAX: 724-889-0094

TENNESSEE
MEMPHIS
4000 WINCHESTER ROAD
MEMPHIS, TN 38118
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FAX: 901-365-3914

TEXAS
DALLAS
2920 114TH STREET SUITE 100
GRAND PRAIRIE, TX 75050
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FAX: 214-634-8874

HOUSTON
10355 W. LITTLE YORK ROAD SUITE 300
HOUSTON, TX 77041
PHONE: 281-977-6500
FAX: 281-977-6510

UTAH
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2230 SOUTH MAIN STREET
SALT LAKE CITY, UT 84115
PHONE: 801-832-0127
FAX: 801-832-8911

WISCONSIN
MILWAUKEE
1960 SOUTH CALHOUN ROAD
NEW BERLIN, WI 53151
PHONE: 262-784-5940
FAX: 262-784-1215

Introduction to Motion Control and PLC products

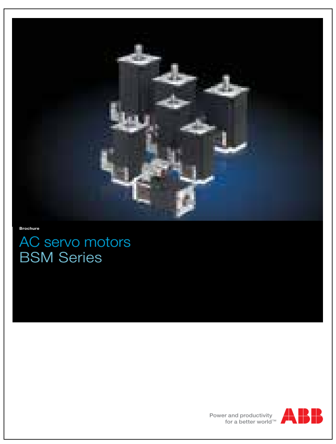
Solutions
ABB's comprehensive range includes multi-axis Motion Controllers, high performance Motion Control Drives, rotary servo motors, PLCs and HMI - all designed to seamlessly interface with each other to provide a complete motion solution. This allows you to optimize your design time, save development costs and minimize your time to market.

Choice
ABB firmly believes in offering our customers a range of products to fit a variety of market needs. Whether this means delivering a product from stock, designing a product for your specific application, accessing technical data, or how you place your order, we make it easy to do business with us. Our products are designed to handle a wide range of applications.

Quality, reliability & design
With ISO9001:2008 certification to assure conformity to customer requirements and quality standards, and by using the latest CAD tools and manufacturing techniques, ABB's engineering teams work side-by-side through design, product development, manufacture and final test to make sure that total quality and reliability is built into and stays with each product throughout its long lifetime.

Experience
Technical knowledge is the key to solving customers' needs. Our extensive experience has been gained over many years through close customer contact from product development to field maintenance, providing invaluable feedback for our product development process - ensuring ABB Motion Control and PLC products meet the ease of use, flexibility and performance demanded by the markets we serve. Application notes reflecting our knowledge and ability are available for download on the web at www.abb.com/motion.

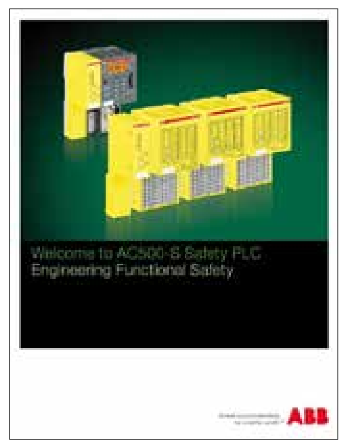
Information
Information must be comprehensive and easily accessed. To make it easier for our customers, we provide a complete range of product literature as well as a website dedicated to Motion Control products - www.abb.com/motion. This brings together, in one location, all the information relevant to Motion Control and PLC products and includes technical information, latest news, application stories, application notes and support.



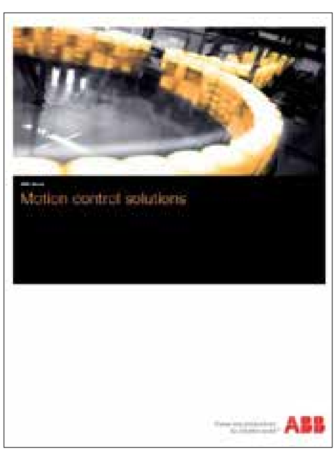
9AKK106417
Servo Motor Catalog



3AUA0000117576
MicroFlex e150 Flyer



PLC-PHTB01U-EN
AC500-S Safety PLC Engineering Functional Safety Brochure



3AUA0000117593
Motion Control Solutions Brochure



3AUA0000168683
MotiFlex e180 Catalog



PLC-PHTC02U-EN
Industrial Automation Catalog

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NextMove
Motion Control solutions

Motion Control solutions today to meet tomorrow's demands

With today's automation applications demanding increasing speed and flexibility to stay ahead, finding a control solution to meet those demands can be difficult. ABB has the answer. Utilizing a high performance processor core coupled with the power, flexibility and ease of use of ABB's Mint® programming language, the NextMove range of Motion Controllers can take on the most demanding of multi-axis applications.

A history of success

ABB's Motion Controllers have been at the heart of automation machines for over two decades. The NextMove Motion Controller family is synonymous with power, flexibility and versatility. Operating around the world, NextMove has met the demands of a rapidly developing automation world, providing increased productivity, reliability and flexibility.

Flexible programming

At the heart of NextMove's success and proven capability is ABB's highly acclaimed Motion programming language, Mint®. Mint provides a high level, easy to use programming language that encapsulates the needs of multi-axis Motion, HMI, communications, I/O machine control and more. Mint allows the NextMove Motion Controllers to operate in a stand-alone capacity without the need for a PC, PLC or integrated with a PC. Mint ActiveX® controls also allow complete freedom to program Motion, I/O sequencing and monitoring from any Windows application. ActiveX® applications can be run in parallel to the embedded Mint application for increased flexibility.

Flexible machine control I/O

NextMove's I/O structure provides a flexible interface to external machine control. I/O points are configured in software for functionality such as safety limits, datum switches, error input and error outputs. You only define the I/O you need for your machine. All I/O can be controlled within the Mint programming language allowing NextMove to handle those tasks typically undertaken by an external PLC. I/O is easily expanded using the onboard CANopen port.

NextMove's I/O capability is further enhanced by Mint's Event structure which deals with time critical responses to the change of state of a digital input. The Mint program can respond quickly and effectively without the need to poll the input state.

High speed registration inputs

For high speed registration applications, a number of the digital inputs can be defined to latch position in 1 micro-second. This real-time data can be used to make decisions about product position and is ideally suited to applications such as labeling, packaging machines and printing lines.

Choice of communication interfaces

NextMove is equally at home operating stand-alone or interfacing directly to a PC or PLC via RS232/422 serial ports, USB, PCI-bus and Ethernet TCP/IP. ABB gives you the choice to suit your application. PCI-bus is ideally suited for those applications that require large amounts of data transfer between the PC and Motion Controller. USB handles fast and reliable data transfer between the PC and NextMove with the convenience of an external Motion Controller.

Every NextMove Controller is equipped with a CANopen communication interface. This can be used for I/O expansion (using industry standard DS401 I/O devices), Baldor KPD HMI's or for communications with other Mint Controllers.



NextMove e100



NextMove ESB-2



NextMove PCI-2

Motion Controllers
MINT programmable, analog, Pulse Train Output (PTO), CANopen, POWERLINK, Modbus TCP and Modbus RTU

NextMove ESB-2

- Compact panel mount Motion Controller
- Up to 8 axes of coordinated motion
- Stepper and analog axis control
- CANopen manager for system expansion
- MINT programming for multitasking control of communications, logic, motion and HMI interaction in simple motion applications.



NextMove ESB-2

Compact Motion Controller for analog and stepper control

Series NextMove ESB-2
- 4 x PTO (Stepper) axes
- 3 or 4 x analog controlled axes with encoder feedback
- Digital and analog I/O including 4 x high speed registration latches
- Options
  - RS232 or RS485 serial option
  - Differential / single-ended stepper interfaces
  - 7 axis or 8 axis variants.

For further information, see flyer: 3AUA0000117575

NextMove e100

- Compact panel mount Motion Controller
- Ethernet PowerLink technology for real-time Motion Control
- Stepper and analog axis control
- CANopen manager for system expansion
- MINT programming for multitasking control of communications, logic, motion and HMI interaction in simple motion applications.



NextMove e100

Compact Motion Controller with real-time Ethernet POWERLINK technology

Series NextMove e100
- 1 to 16 axes interpolated axes via POWERLINK
- Additional CN profiled POWERLINK axes
- 4 x PTO (stepper) axes
- 3 x analog controlled axes with encoder feedback
- Maximum of 30 axes of control
- Digital and analog I/O including 4 x high speed registration latches
- Options
  - Differential / single-ended stepper interfaces
  - 8, 12 or 16 axes of interpolated motion.

For further information, see flyer: 3AUA0000117574

Motion Controllers
NextMove



NextMove e100

NextMove e100 (Ethernet Powerlink, Modbus TCP and Modbus RTU)

- Compact, high performance Motion Controller
- Real-time Ethernet Powerlink and Modbus TCP/IP
- 8, 12 or 16 axes of interpolated motion
- (16 MN + 14 CN) profiled axes = max. 30 Powerlink axes
- (4) stepper axes/(3) analog axes
- CANopen network manager
- RS232/422 and USB communications
- Advanced multitasking Mint programming
- ActiveX® controls
- Integrated digital/analog I/O including high speed registration inputs

Number of axes	Catalog number Differential stepper	List price	Catalog number Single-ended stepper	List price
8	NXE100-1608DBW *	$3,185	NXE100-1608SBW	$3,185
12	NXE100-1612DBW *	$3,788	NXE100-1612SBW	$3,788
16	NXE100-1616DBW *	$4,392	NXE100-1616SBW	$4,392

NOTES: * Differential stepper outputs
Suffix "W" indicates ABB branded products



NextMove ESB-2

NextMove ESB-2

- Compact, panel mount Motion Controller
- Economical and simple to install
- Powerful multitasking Mint programming
- (4) axes of closed loop control (motion control or vector)
- (4) axes of open loop control (step/direction outputs)
- Max. (8) axes
- USB, serial and CANopen provide flexible communications to PLC, distributed I/O and other devices
- Integrated digital/analog I/O including high speed registration inputs
- Firmware variant allows the Controller to operate as a CANopen DS402 master and control up to 64 axes

Number of axes	Serial port	Catalog number Differential stepper	List price	Catalog number Single-ended stepper	List price
7	RS232 / USB	NSB202-501W *	$2,580	NSB203-501W *	$2,580
7	RS485 / USB	NSB202-502W **	$2,580	NSB203-502W **	$2,580
8	RS232 / USB	NSB204-501W *	$2,883	NSB205-501W *	$2,883
8	RS485 / USB	NSB204-502W **	$2,883	NSB205-502W **	$2,883

NOTES: * USB/RS232
** USB/RS485
Suffix "W" indicates ABB branded products

Baldor to ABB replacement cover conversion Kits for motion controllers are available.



NextMove PCI-2

NextMove PCI-2

- Compact, high performance PCI-bus Motion Controller
- (4) stepper axes + (4) analog axes = max. (8) axes
- Onboard digital and analog I/O
- CANopen for distributed control
- High speed PCI bus interface
- Advanced multitasking Mint or ActiveX® programming
- Firmware variant allows the controller to operate as a CANopen DS402 master and control up to 64 axes

Number of axes	Catalog number (PNP outputs)	List price	Catalog number (NPN outputs)	List price
1 *	PCI201-501	$2,261	PCI201-511	$2,261
2 *	PCI201-502	$2,411	PCI201-512	$2,411
3 *	PCI201-503	$2,563	PCI201-513	$2,563
4 *	PCI201-504	$2,713	PCI201-514	$2,713
8 **	PCI201-508	$3,317	PCI201-518	$3,317

NOTES: * User configurable for servo or stepper.
** 4-axis servo control and 4-axis stepper.

c UL us CE

Shaded areas are stocked products.

Motion Controllers
Mint Option Card



MotiFlex e100 with Mint option card

Plug in option cards for use with MotiFlex e100

- Plug-in Motion Controller
- Controls the local drive it is plugged in and 3 PowerLink axes + an Analog axis...
- It has up to 8 axes which can consist of:
  - Up to 2 local servos, 1 is always used as the local axis
  - Up to 1 local stepper
  - Up to 7 virtual axes
  - Up to 3 remote MNs
  - Up to 3 remote CNs
- Onboard digital and analog I/O
- Encoder input for electronic gearing functions
- CANopen® manager for I/O expansion (via host drive)
- Add CP600 HMI via RS485 Modbus® RTU
- An additional option card can be used in the MotiFlex e100 to expand I/O or add additional feedback or fieldbus interfaces.

Description	Order code	Price
Single axis MINT motion option (plug-in)	OPT-MF-100	$1,335
4-axis MINT motion option (plug-in)	OPT-MF-101	$1,950

Shaded areas are stocked products.

Motion Controller accessories
NextMove

NextMove accessories	Catalog number	List price
NextMove PCI-2 breakout unit, with two part connectors	PCI003-502	$924
4 channel encoder splitter board (DIN rail mount)	OPT029-501	$545
8 channel encoder splitter board (DIN rail mount)	OPT029-502	$650
NextMove e100/ESB-2 spare connector kit	OPT-ACC003-502 *	$118
Software		
MintNC software	MNC001-501	$3169

NOTES: *Connectors are shipped as standard with the NextMove e100/ESB-2

Cables	Length		Catalog number	List price
	Meters	Feet		
For use with NextMove PCI-2				
Drive to motion controller (NextMove PCI / PCI-2) Cable for use with MicroFlex (DB9 both ends)	1	3.2	CBL010MF-E3A	$126
	2	6.5	CBL020MF-E3A	$172
For use with NextMove ESB-2				
Drive to motion controller (NextMove e100 / ESB-2 / ES) Cable for use with MicroFlex (DB9 both ends)	1	3.2	CBL010MF-E3B	$143
	2	6.5	CBL020MF-E3B	$172
For use with NextMove PCI-2				
100 pin breakout cables	1	3.2	CBL021-501	$221
	1.5	4.9	CBL021-502	$279
	3	9.8	CBL021-503	$318
Ethernet and CANopen cables				
Ethernet cable suitable for e100, e150 and e180 (RJ45 to RJ45 connectors)	0.2	0.7	CBL002CM-EXS	$42
	0.5	1.6	CBL005CM-EXS	$44
	1	3.2	CBL010CM-EXS	$47
	2	6.5	CBL020CM-EXS	$56
	5	16.3	CBL050CM-EXS	$78
	10	32.6	CBL100CM-EXS	$130
CANopen cable (RJ45 - flying lead)	0.25	0.8	CBL002CM-CSS1	$82
	0.5	1.6	CBL005CM-CSS1	$86
	1	3.3	CBL010CM-CSS1	$89
	2	6.6	CBL020CM-CSS1	$92
	5	16	CBL050CM-CSS1	$120
	10	33	CBL100CM-CSS1	$144
	20	67	CBL200CM-CSS1	$230
CANopen cable (RJ45 - RJ45)	0.25	0.8	CBL002CM-CSS2	$47
	0.5	1.6	CBL005CM-CSS2	$50
	1	3.3	CBL010CM-CSS2	$53
	2	6.6	CBL020CM-CSS2	$65
	5	16	CBL050CM-CSS2	$88
	10	33	CBL100CM-CSS2	$132
	20	67	CBL200CM-CSS2	$226
Baldor to ABB replacement cover conversion kits - Motion Controllers				
NextMove e100 (NXE) single-ended O/Ps conversion kit			OPT-ABBKIT-005	$76
NextMove e100 (NXE) differential O/Ps conversion kit			OPT-ABBKIT-006	$76
NextMove ESB-2 (NSB2) differential O/Ps conversion kit			OPT-ABBKIT-007	$114
NextMove ESB-2 (NSB2) single-ended O/Ps conversion kit			OPT-ABBKIT-008	$114

Shaded areas are stocked products.

Motion Controllers
Product overview

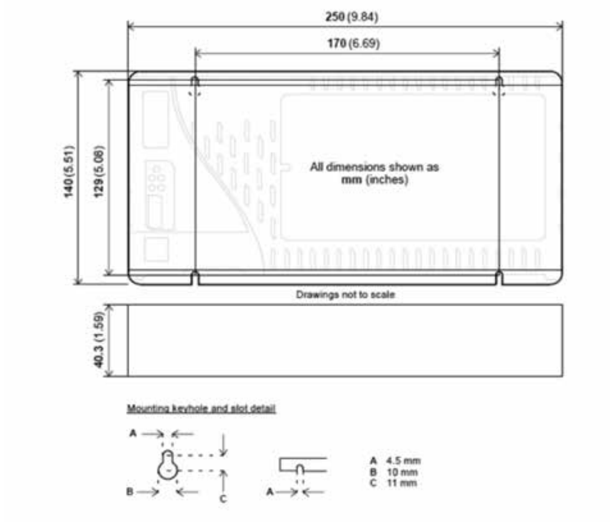
	NextMove e100	NextMove ESB-2	NextMove PCI-2
Physical format	Panel mount	Panel mount	PCI
Number of axes	16 (1)	7 or 8	1 - 8
Motion control/vector axes (closed loop)	3 (±10V) 16 (Powerlink)	3 or 4	1 - 4
Stepper axes (open loop)	4	4	1 - 4
Processor speed	120 MHz	120 MHz	120 MHz
FLASH memory	4 MByte	2 MByte	-
User memory	1 MByte	1 MByte	1 MByte
Battery backup	No	No	No
Non-volatile memory (32 bit words)	4064	4064	3072
Ethernet Powerlink	■	o	o
Ethernet TCP/IP	■	o	o
RS232 ports	User selectable via switch	Product variant(9)	0
RS422 ports	User selectable via switch	Product variant(9)	0
USB ports (12 Mbit/s)	1	1	0
CANopen port	■	■	■
CANopen DS401 I/O master	■	■	■
CANopen DS402 master	o	■	■
PCI interface	o	o	■
Digital inputs	20	20	20
Opto-isolated	PNP/NPN	PNP/NPN	PNP/NPN
High speed position latches (4)	4	4	4
Quadrature position counters (7) A/B position counter using digital inputs	0	1	0
Digital outputs	12	12	12
Opto-isolated	PNP	PNP	PNP/NPN
High speed position compare outputs (5)	4 (6)	4 (6)	4 (6)
Analog outputs	4 x 12 bit	4 x 12 bit	4 x 16 bit
Analog inputs	2 x 12 bit	2 x 12 bit	4 x 12 bit
Relay outputs	1	1	1
Master encoder inputs (3)	0 (2) use encoder inputs	2 or 1 (6)	1
Encoder inputs	3	5	4
MintNC supported	■	■	■
HPGL supported	■	■	■
Conformance	CE, UL, cUL, RoHS	CE, UL, cUL, RoHS	RoHS (Not CE marked. No enclosure, sold as component to professional assemblers who CE mark the end apparatus)

■ Supported o Not-supported • Option

NOTES:

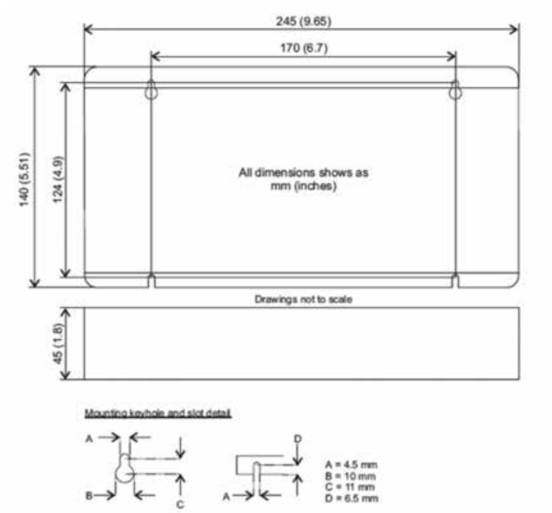
(1) Support for up to (16) axes of coordinated motion and up to (14) more axes of non-coordinated motion via DS402, max mum (30)
(2) Ethernet Powerlink encoders supported
(3) Local axis encoder can be configured for use as a master encoder
(4) Uses first (4) digital inputs for fast position latch of local axes
(5) Uses first (4) digital outputs for fast position compare
(6) Depends on motion control axis configuration
(7) (3) digital inputs can be configured to count a 24V quadrature signal (ABZ)
(8) Can be (2) motion control axes and (4) stepper axes, or (6) stepper axes depending on firmware
(9) Can be RS232 or RS422 depending on product variant
(10) Can be opto-isolated if optional opto-isolated backplane is used
(11) For the ESB-2 and PCI-2 there is a firmware variant that allows the controller to operate as a CANopen DS402 master and control up to 64 axes.

Motion Controllers
NextMove dimensions and weights



NextMove e100 dimensions and weight

Description	Value
Weight	Approximately 700g (1.5 lb.)
Nominal overall dimensions	250mm x 140m x 40.3mm (9.84in x 5.51in x 1.59in)



NextMove ESB-2 dimensions and weight

Description	Value
Weight	Approximately 700g (1.5 lb.)
Nominal overall dimensions	245mm x 140m x 45mm (9.65in x 5.51in x 1.77in)



NextMove PCI-2 dimensions and weight

Description	Value
Weight	Approximately 305g (0.67 lb.)
Nominal overall dimensions	Standard 7 in PCI card 175mm (6.88in) long x 106.7mm (4.20in) high

AC Motion Control Drives
Motion Control Drive solutions

Flexible Drive technology
As the world leader in industrial Drives, we offer flexibility in technology, both motor control and system connectivity with powers ranging from less than 1 kW to 355 kW / 1 hp to 450 hp / 1 A to 580 A. ACSM1 drives provide servo and induction motor control and a choice of Ethernet or traditional fieldbus options. MicroFlex e100 and MotiFlex e100 drives offer high performance rotary and linear servo control and feature real-time Ethernet POWERLINK and universal encoder support. MicroFlex e150 offers advanced motion programming and EtherCAT connectivity for multi-axis systems with AC500 PLC products.

The MotiFlex e180 Servo Drive combines Ethernet technology, advanced multitasking programming and Safe Torque Off. It can operate from 200 to 480 V AC three-phase and is available up to 90A 480V and uses EtherCAT® CN (Slave), Modbus/TCP Server / Client, EtherNet/ IP (function library), and POWERLINK CN. In addition, the Drive memory module holds all drive configuration and firmware which allows PC-free drive replacement by simply swapping the module from one drive to another to minimize downtime.

ABB's real-time Ethernet Powerlink® and Servo Drives are a new era in Motion Control. With ultra-low set-up time, plug and play expandability and the power of ABB's Mint® programming language, no other manufacturer offers higher performance and flexibility in such a cost effective system.

Real performance. Real ease of use. Count on ABB to make your next Motion Control application a real-time Ethernet reality.

Getting started quickly
ABB's Drives are designed for ease of use the moment you take them out of the box. Start the accompanying Windows based Mint WorkBench and the wizard will take you through all of the commissioning steps. Simply select your rotary servo motor catalog model number from the database and answer some simple application questions. Full auto-tune of current, velocity and position loops will get you up and running quickly, deliver optimum performance, and test that the motor cables have been correctly wired and the feedback is in the correct orientation.

Dynamic performance
The MicroFlex and MotiFlex families incorporates sophisticated low pass and notch filters to handle the most dynamic of applications, by helping to eliminate resonance within the machine. These are configured within the easy-to-use Mint WorkBench.



MotiFlex e100 (Size A)



MotiFlex e180 (Size A)



ACSM1 (Frames A - G2)



MicroFlex e150



MicroFlex e100



MicroFlex Analog

AC Motion Control Drives
Analog, Pulse Train Output (PTO), and POWERLINK options

MicroFlex Analog

- Compact Motion Control Drive for single and three-phase operation
- ±10 V analog speed / torque demand or Pulse + Direction inputs
- Choice of resolver feedback or incremental encoder
- Pulse Train control inputs compatible to Pulse Train Output (PTO) module FM562 for AC500 and AC500-eCo.

MicroFlex e100

- Compact Motion Control Drive for single and three-phase operation
- Ethernet PowerLink technology for real-time motion control
- MINT programming for multitasking control of communications, logic, motion and HMI interaction in simple motion applications.



Compact Motion Control Drive for simple analog or PTO control

MicroFlex Analog



Compact Motion Control Drive with real time Ethernet POWERLINK technology

MicroFlex e100

Series MicroFlex Analog
- 1 or 3-phase operation 105...250 V AC
- 3, 6 and 9 Arms
- IP20 enclosure for cabinet installation (UL open)
- Auto-tuning and anti-resonance digital filters
- Suitable for single drive and multi-axis systems
- Controls rotary and linear AC servo motors
- Options
  - Space saving footprint EMC filter
  - Brake resistors

For further information, see flyer "ABB motion control drives, MicroFlex brushless AC servo drives", code: 3AUA0000123110 EN.

Series MicroFlex e100
- 1 or 3-phase operation 105...250 V AC
- 3, 6 and 9 Arms
- IP20 enclosure for cabinet installation (UL open)
- Real-time Ethernet operation with PowerLink
- Suitable for single drive and multi-axis systems
- Controls rotary and linear AC servo motors
- Options
  - Space saving footprint EMC filter
  - Brake resistors

For further information, see flyer "ABB motion control products, MicroFlex e100 servo drives", code: 3AUA0000116018 EN.

AC Motion Control Drives
EtherCAT® and POWERLINK options

MicroFlex e150

– Compact Motion Control Drive with embedded safety for single and three-phase operation
– Ethernet technology including EtherCAT® for real-time motion control
– Advanced MINT programming for multitasking control of communications, logic, motion and HMI interaction in high performance motion applications.



MicroFlex e150

Intelligent Motion Control Drive with embedded safety and EtherCAT® technology

Series MicroFlex e150
– 1 or 3-phase operation 105...250 V AC
– 3, 6 and 9 Arms
– IP20 enclosure for cabinet installation (UL open)
– Embedded real-time Ethernet including EtherCAT®, Modbus® TCP and Ethernet/IP™
– Suitable for single drive and multi-axis systems
– Controls rotary and linear AC servo motors
– Safe torque-off feature as standard
– MINT Motion programming
– Options
  – Space-saving footprint EMC filter
  – Resolver adapter
  – Dual encoder splitter
  – Brake units.

For further information, see flyer "ABB motion control products, MicroFlex e150 servo drives", code: 3AUA0000097609 EN.

MicroFlex e150 function supported by 'option' type

Feature/function	E152AxxEINA	E152AxxEIOA
EtherCAT slave drive	Yes	Yes
EtherCAT, Modbus TCP	No	Yes
Mint programming	No	Yes
CP600 Support	No	Yes
Mint GDI Interface (Generic Drive Interface)	No	Yes
Dual encoder for position loop	Yes	Yes
Dual encoder line shaft following/flyer shear/CAM	No	Yes
Digital and analog IO	Used as drive signals controlled by EtherCAT master	Used as drive signals controlled by Mint or EtherCAT master

MotiFlex e100

– Wide voltage range, DC bus capability and three-phase operation for a broad range of applications
– Ethernet PowerLink technology for real-time motion control
– MINT programming for multitasking control of communications, logic, motion and HMI interaction, plus a multi-axis plug-in motion option.



MotiFlex e100

Versatile Motion Control Drive with integrated real-time Ethernet POWERLINK technology

Series MotiFlex e100
– Three-phase operation 180...528 V AC
– 1.5...65 Arms in three frame sizes
– IP20 enclosure for cabinet installation (UL open)
– Real time Ethernet operation with PowerLink
– Suitable for single drive and multi-axis systems
– Controls rotary and linear AC servo motors
– Integrated DC bus for energy sharing capability
– Options
  – Plug-in motion controller for up to five axes
  – Fieldbus options
  – Plug-in IO options (digital or analog)
  – Secondary feedback options, resolver or encoder
  – Filters, brake resistors, chokes and DC bus bars.

For further information, see flyer "ABB motion control products, MotiFlex e100 servo drives", code: 3AUA0000116019 EN.

AC Motion Control Drives
EtherCAT® and POWERLINK options

MotiFlex e180

- EtherCAT® , Modbus/TCP, EtherNet/IP and POWERLINK
- DSL combined power and feedback option (December 2015)
- Advanced MINT programming for multi-tasking control of communications, logic, motion and HMI interaction in high performance motion applications
- Safety as standard



MotiFlex e180
(Size A)

Versatile Motion Control Drive with integrated real-time Ethernet technology

Series MotiFlex e180

- Three-phase operation 200...480 V AC
- 2.3 to 90 A Arms in four frame sizes (A-D)
- IP20 enclosure for cabinet installation (UL Open)
- Real-time Ethernet with EtherCAT and PowerLink and Modbus TCP and EtherNet/IP
- Suitable for single drive and multi-axis systems
- Controls rotary and linear AC servo motors
- Safe torque off as standard
- Memory unit for firmware, settings and functionality level
- Options
  - Drive functionality levels (Single axis Mint motion) or EtherCAT Slave
  - Feedback options, resolver, encoder, serial encoders or DSL (December 2015)
  - Filters, brake resistors, and chokes

For further information, see flyer “ABB motion control drives, MotiFlex e180 servo drives”, code: 3AUA0000168682 EN.

AC Motion Control Drives
MicroFlex



MicroFlex e150

MicroFlex e150 (EtherCAT®, Ethernet/IP, Modbus® TCP/IP)

- Compact EtherCAT Motion Control Drive
- Simple to advanced motion technology fully integrated
- Easy, no charge and powerful Mint Programming PC tool for commissioning and auto-tuning
- Precise control of rotary and linear motors
- Embedded EtherCAT®, Ethernet/IP™, Modbus TCP/IP
- Standard I/O: (10) inputs + (7) outputs
- Universal and Dual Encoder function
- Safe Torque Off (STO) SIL3 PLe
- USB, RS485 serial and 7-segment display communications
- Resolver adapter accessory

Input voltage				1/3 phase 105-250 V AC	
Bus voltage				160-320 V DC	
Output current amps (rms)				Catalog number * **	List price
Continuous (200%)	Continuous (300%)	Peak (200%, 3 s)	Peak (300%, 3 s)		
3	2.5	6	7.5	E152A03EIOA	$1,375
6	5.25	12	15.75	E152A06EIOA ***	$1,500
9	7.5	18	22.5	E152A09EIOA ***	$1,675

MicroFlex e150 (EtherCAT slave device Drive)

Input voltage				1/3 phase 105-250 V AC	
Bus voltage				160-320 V DC	
Output current amps (rms)				Catalog number * **	List price
Continuous (200%)	Continuous (300%)	Peak (200%, 3 s)	Peak (300%, 3 s)		
3	2.5	6	7.5	E152A03EINA	$1,260
6	5.25	12	15.75	E152A06EINA ***	$1,370
9	7.5	18	22.5	E152A09EINA ***	$1,550

NOTES: Will accept either incremental or absolute encoder feedback (BiSS, EnDat, future Hiperface, SSI, SmartAbs®).
See ABB power supplies, 1SVR4270#, CP-E/C. For slave device functions, see the MicroFlex e150 "Option Type" chart in the Automation Solutions section: ABB EtherCAT multi-axis with AC500 PLC
* Order regen resistor separately (see Accessories) .** Customer must supply +24 V DC for I/O operation.
*** Requires external ventilation. See fan kits and User Manual.



MicroFlex e100

MicroFlex e100 (Ethernet Powerlink)

- Compact Ethernet Powerlink Motion Control Drive
- Simple motion programming with Mint Lite software and auto-tuning
- Ethernet - Powerlink and TCP/IP
- Universal encoder
- CANopen port for simple expansion
- USB and RS485 serial sommunications
- LEDs: Drive status, CANopen, Ethernet Powerlink

Input voltage				1/3 phase 105-250 V AC	
Bus voltage				160-320 V DC	
Output current amps (rms)				Catalog number * **	List price
Continuous (200%)	Continuous (300%)	Peak (200%, 3 s)	Peak (300%, 3 s)		
3	2.5	6	7.5	MFE230A003BW	$1,352
6	5.25	12	15.75	MFE230A006BW ***	$1,451
9	7.5	18	22.5	MFE230A009BW ***	$1,724

NOTES: Will accept either incremental or absolute encoder feedback (BiSS, EnDat, future Hiperface, SSI, SmartAbs®).
See ABB Power Supplies, 1SVR4270#, CP-E/C
* Order regen resistor separately (see Accessories) .** Customer must supply +24 V DC for I/O operation .
*** Requires external ventilation. See fan kits and User Manual . Suffix "W" indicates ABB branded products



MicroFlex Analog

MicroFlex Analog

- Compact Analog Motion Control Drive
- Encoder/resolver feedback and simulated encoder output
- RS232/422 serial communications for PC tools
- Analog or pulse and direction control, e.g. for motion control applications using the ABB PLC AC500 or AC500-eCo CPUs with the Pulse Train Output (PTO) module FM562

Input voltage		1/3 phase 105-250 V AC			
Bus voltage		160-320 V DC			
Output current amps (rms)		Catalog number * ** ****	List price	Catalog number * ** *****	List price
Continuous	Peak				
Encoder feedback					
3	6	FMH2A03TR-EN23W	$1,027	FMH2A03TR-EN43W	$1,027
6	12	FMH2A06TR-EN23W ***	$1,127	FMH2A06TR-EN43W ***	$1,127
9	18	FMH2A09TR-EN23W ***	$1,400	FMH2A09TR-EN43W ***	$1,400
Resolver feedback					
3	6	FMH2A03TR-RN23W	$1,139	FMH2A03TR-RN43W	$1,139
6	12	FMH2A06TR-RN23W ***	$1,239	FMH2A06TR-RN43W ***	$1,239
9	18	FMH2A09TR-RN23W ***	$1,512	FMH2A09TR-RN43W ***	$1,512

NOTES: See ABB power supplies, 1SVR4270#, CP-E/C
* Order regen resistor separately .** Customer must supply +24 V DC for I/O operation.
*** Requires external ventilation. See fan kits and User Manual.
**** RS232 ***** RS485 Suffix "W" indicates ABB branded products
Baldor to ABB replacement cover conversion kits for motion control drives are available.

Shaded areas are stocked products.

AC Motion Control Drives
Accessories

Accessories (MicroFlex Analog and MicroFlex e100)

Description	Catalog number	List price
Fan kit, 24 V DC	FAN001-024	$200
MicroFlex e100 connector kit	OPT-ACC001-508	$105
MicroFlex Analog resolver connector kit	OPT-ACC001-509	$59
MicroFlex Analog encoder connector kit	OPT-ACC001-507	$59
RS232 serial cable	CBL001-501	$131
USB signal isolator	OPT-CNV-003	$258

Accessories (MicroFlex e150)

Description	Catalog number	List price
Fan kit, 24 V DC	FAN001-024	$200
MicroFlex e150 Resolver Adapter **	OPT-MF-201	$195
USB cable 1m/3.3ft	CBL010CM-USB	$37
USB cable 2m/6.6ft	CBL020CM-USB	$46
USB cable 3m/9.8ft	CBL030CM-USB	$55
USB isolator	OPT-CNV-003	$258
MicroFlex e150 connector set	OPT-ACC001-520	$87
MicroFlex e150 encoder breakout *	OPT-MF-200	$190

NOTES:
* It splits the necessary encoder signals to provide easy connection of an incremental ABZ encoder and a serial based encoder at the same time. The purpose is to allow dual encoder support for either dual feedback or master follower. Encoder breakout also provides for convenient connection of encoder and hall feedback cables from linear motors.
** Contact factory for compatible drives used with the OPT-MF-201

Baldor to ABB replacement cover conversion kits - Motion Control drives

Description	Catalog number	List price
MicroFlex analog (FMH) conversion kit	OPT-ABBKIT-001	$42
MicroFlex e100 (MFE230) conversion kit	OPT-ABBKIT-002	$42
MotiFlex e100 1 to 16A (frame A) (MFE460) conversion kit	OPT-ABBKIT-003	$71
MotiFlex e100 21 to 65A (frame B/C) (MFE460) conversion kit	OPT-ABBKIT-004	$77

Cables - e100, e150 or e180 Ethernet communication cables - communication cables

Description	Catalog number	List price
Ethernet cable: shielded cat5e RJ45 0.2 m/0.7 ft.	CBL002CM-EXS	$42
Ethernet cable: shielded cat5e RJ45 0.5 m/1.6 ft.	CBL005CM-EXS	$44
Ethernet cable: shielded cat5e RJ45 1.0 m/3.2 ft.	CBL010CM-EXS	$47
Ethernet cable: shielded cat5e RJ45 2.0 m/6.5 ft.	CBL020CM-EXS	$56
Ethernet cable: shielded cat5e RJ45 5.0 m/16.3 ft.	CBL050CM-EXS	$78
Ethernet cable: shielded cat5e RJ45 10.0 m/32.6 ft.	CBL100CM-EXS	$130

Shaded areas are stocked products.

AC Motion Control Drives
MotiFlex e100



MotiFlex e100 Size A
(1.5 A - 16 A)

MotiFlex e100

- Advanced Servo Drive/Motion Controller
- Simple motion programming with Mint Lite software, auto-tuning and plug-in Motion Controller option
- Universal and dual encoder function including optional resolver interface
- Ethernet Powerlink interface (real time) and CANopen DSP 401 network manager for expansion
- DC bus operation with simple link system
- 2 x expansion card slots for secondary feedback, Mint programmable options, fieldbus and I/O expansion

	Input voltage		3 phase 180-560 V AC	
	Bus voltage		325-650 V DC	
	Output current amps (rms)		Catalog number	List price
	Continuous	Peak		
Size A	1.5	3	MFE460A001BW	$2,300
	3	6	MFE460A003BW	$2,400
	6	12	MFE460A006BW	$2,500
	10.5	21	MFE460A010BW	$2,650
	16	32	MFE460A016BW	$2,800
Size B	21	40	MFE460A021BW	$3,700
	26	54	MFE460A026BW	$4,150
	33.5	68	MFE460A033BW	$4,750
Size C	48	96	MFE460A048BW	$6,650
	65	130	MFE460A065BW	$7,900

NOTES: Suffix “W” indicates ABB branded products



MotiFlex e100 Size B
(21 A - 33.5 A)

Accessories for MotiFlex e100

Description	Catalog number	List price
AC power and motor power brackets	OPT-CM-001	$55
Signal and feedback cable bracket size A	OPT-CM-002	$107
Signal and feedback cable bracket size B	OPT-CM-003	$107
DC bus bars for A size drive (2 each)	OPT-MF-DC-A	$45
DC bus bars for B size drive (2 each)	OPT-MF-DC-B	$51
DC bus bars for C size drive - 160mm (2 each)	OPT-MF-DC-C	$134
DC bus bars for C size drive - 212mm (2 each)	OPT-MF-DC-D	$134
Spare connector kit for 1 - 16A	OPT-MF-CN-A	$149
Spare connector kit for 21 - 33.5A	OPT-MF-CN-B	$179
Spare connector kit for 48 - 65A	OPT-MF-CN-C	$191
USB signal isolator	OPT-CNV-003	$258

AC line reactors for use with MotiFlex e100

Control current rating		Catalog number	List price
1 - 6	Size A	LRAC02502	$807
10 - 16	Size A	LRAC03502	$858
21 - 33.5	Size B	LRAC05502	$1,057
48 - 65	Size C	LRAC130ACB2	$1,667



MotiFlex e100 Size C
(48 A - 65 A)

Plug in option cards for use with MotiFlex e100

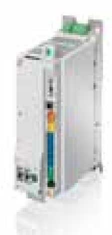
Description	Catalog number	List price
Analog I/O 16 bit 4 off inputs and 4 off outputs differential +/-10 V DC	OPT-MF-001	$625
Digital I/O card 6 off digital inputs (AC optos), 4 off digital output	OPT-MF-005	$465
Incremental encoder + halls with simulated encoder out option	OPT-MF-011	$495
Resolver with simulated encoder out option card	OPT-MF-013	$625
Option card blank cover (spare/replacement)	OPT-MF-000	$36
Single axis Mint Programming module	OPT-MF-100	$1,355
4 axis Mint Programming module	OPT-MF-101	$1,950
Fieldbus carrier option (required for ALL fieldbus cards)	OPT-MF-030	$360
DeviceNet fieldbus option	OPT-FB-001	$855
Profibus fieldbus option	OPT-FB-002	$855
Ethernet/IP fieldbus option	OPT-FB-004	$850
Modbus TCP fieldbus option	OPT-FB-005	$850
Profinet I/O fieldbus option	OPT-FB-006	$850

Shaded areas are stocked products.

AC Motion Control Drives
MotiFlex e180



Frame Size A



Frame Size B



Frame Size C



Frame Size D

MotiFlex e180

- Integrated EtherCAT, Modbus/TCP, TCP/IP, EtherNet/IP and EtherNet Powerlink (EPL)
- EtherCAT DS402 slave, analog drive, step and direction programming option
- Single-axis MINT programming option with advanced MINT programming for multi-tasking control of communications, logic, motion and HMI interaction in high-performance motion applications
- Safe Torque Off (STO) as standard
- Controls rotary and linear AC servo motors with up to 300% overload modes; induction motors up to 150%
- Removable memory unit for firmware, application programs, functionality level, fast service replacements and moving settings from one drive to another
- Dual encoder is supported (incremental encoder input and output), single or multi-turn absolute encoders and resolver interface
- Common DC bus operation
- Partnered with ABB's AC500 PLC line with EtherCAT real-time high-performance or Modbus TCP control for simple applications

Frame	Size	Ratings / 4 kHz								3 phase 200 - 480 V AC 270-650 V DC
		110% 60s		150% 60s		200% 3s		300% 3s		Partial Catalog Number [1,2]
		I2N	I2max	I2N	I2max	I2N	I2max	I2N	I2max	
A	-03A0-4	3.0	3.3	3.0	4.5	3.0	6.0	2.0	6.0	MFE180-04AN-03A0-4
	-05A0-4	5.0	5.5	5.0	7.5	4.0	8.0	2.7	8.1	MFE180-04AN-05A0-4
	-07A0-4	6.4	7.1	6.0	9.0	4.7	9.4	3.2	9.6	MFE180-04AN-07A0-4
B	-016A-4	14.0	15.4	11.0	16.5	9.0	18.0	7.0	21.0	MFE180-04AN-016A-4
C	-024A-4	21.5*	23.7*	17.0*	25.5*	13.5	27.0	10.0	30.0	MFE180-04AN-024A-4
	-031A-4	28.0*	30.8*	25.0*	37.5*	21.0	42.0	16.0	48.0	MFE180-04AN-031A-4
	-046A-4	41.0*	45.1*	35.0*	52.5*	28.0	56.0	20.0	60.0	MFE180-04AN-046A-4
D	-060A-4	62.0*	68.2*	46.0*	69.0*	35.0	70.0	25.0	75.0	MFE180-04AN-060A-4
	-090A-4	90.0*	99.0*	70.0*	105.0*	55.0	110.0	40.0	120.0	MFE180-04AN-090A-4

Frame	Size	Ratings / 8 kHz								3 phase 200 - 480 V AC 270-650 V DC
		110% 60s		150% 60s		200% 3s		300% 3s		Partial Catalog Number [1,2]
		I2N	I2max	I2N	I2max	I2N	I2max	I2N	I2max	
A	-03A0-4	3.0	3.3	3.0	4.5	2.3	4.6	1.6	4.8	MFE180-04AN-03A0-4
	-05A0-4	4.0	4.4	4.0	6.0	3.0	6.0	2.2	6.6	MFE180-04AN-05A0-4
	-07A0-4	5.0	5.5	4.0	6.0	4.0	8.0	3.0	9.0	MFE180-04AN-07A0-4
B	-016A-4	10.0	11.0	9.0	13.5	7.0	14.0	5.0	15.0	MFE180-04AN-016A-4
C	-024A-4	17.5*	19.3*	15.0*	22.5*	12.0	24.0	9.0	27.0	MFE180-04AN-024A-4
	-031A-4	25.0*	27.5*	20.0*	30.0*	18.0	36.0	13.0	39.0	MFE180-04AN-031A-4
	-046A-4	33.0*	36.3*	31.0*	46.5*	25.0	50.0	17.0	51.0	MFE180-04AN-046A-4
D	-060A-4	45.0*	49.5*	35.0*	52.5*	28.0	56.0	21.0	63.0	MFE180-04AN-060A-4
	-090A-4	55.0*	60.5*	47.5*	71.3*	40.0	80.0	30.0	90.0	MFE180-04AN-090A-4

NOTES:
For pricing included with "complete" catalog number, see MotiFlex e180 List Price page.
* To achieve listed 110% and 150% ratings, only Frames C and D models (-024A-4 to -090A-4) require a mains choke (AC or DC)
1) Add required feedback interface (+ plus code) to base drive part number
2) Add programming option (+ plus code) if applicable

MotiFlex e180 has four different overload modes as user selection: 110%, 150%, 200%, 300%
I_{2N} Maximum continuous rms current in selected overload mode. Load current duty cycle rms should be lower than this
I_{2max} Maximum overload rms current for 60s (110%, 150%) or 3s (200%, 300%) in selected overload mode

Some 4kHz or 8kHz selection guidelines include the following:
- 4kHz gives higher output currents
- Use 8kHz for applications requiring:
  - quieter operating environments
  - decreased motor losses with derated drives

110% / 150% ratings are similar to "Heavy Duty" mode matching the application and motor type.
200% / 300% ratings are similar to "Dynamic" mode matching the application and motor type.

Example 1:
- 6A RMS, 20A Peak (≤ 3s)
- The -016A-4 Frame B 4kHz 300% Drive is rated for 7A RMS, 21A Peak - exceeding requirements

Example 2:
- 5.6A RMS, 8.8A Peak (≤ 3s)
- The -07A0-4 Frame A 4kHz 150% Drive is rated for 6A RMS, 9A Peak - exceeding requirements

AC Motion Control Drives
MotiFlex e180


Frame Size A

Feedback interface to base drive

Description	Order plus code
FB-01: Incremental encoder + halls	+L517
FB-02: Digital encoder (serial interfaces), ±SinCos (1v pk-pk), EnDat, Smart Abs, SSI, BiSS, Hiperface	+L518
FB-03: Resolver	+L516

NOTE:
1) See Type Code List Price for complete catalog numbers.

For pricing included with "complete" catalog number, see MotiFlex e180 List Price page.

On all variants:
- Incremental encoder input
- Simulated encoder output

Programming option

Description	Order plus code
Standard firmware installed as default if no other option is selected (EtherCAT DS402 slave, analog drive, step and direction (12-24 Vdc) controlled Drive.	-
Single axis MINT programming	+N8020

NOTE:
1) See Type Code List Price for complete catalog numbers.

For pricing included with "complete" catalog number, see MotiFlex e180 List Price page.


Frame Size B


Frame Size C


Frame Size D

AC Motion Control Drives
How to select a MotiFlex e180 Drive

Type designation: MFE180 - 04AN - xxAx - 4 + Lxxx + Nxxx

Product series
MotiFlex e180

Constructions
04AN: Air cooled module

Size

Voltage ratings
4 200 to 480 VAC +/-10%

Feedback options
+L517 FB-01: Incremental encoder + halls
+L518 FB-02: Digital encoder (serial interfaces) + SinCos (1v pk-pk), EnDat, Smart Abs, SSI, BiSS, Hiperface (not DSL)
+L516 FB-03: Resolver

Functionality level options
+N8020 MINT single-axis programming
-- Standard firmware installed as default if no other option is selected (EtherCAT DS402 slave, analog Drive, step and direction (12-24 Vdc) controlled Drive)

Dimensions

Drive only

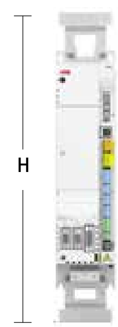
Frames	Height		Width		Depth		Weight	
	mm	in	mm	in	mm	in	kg	lb
A	364	14.3	90	3.54	144	5.67	3	6.61
B	380	15	100	3.94	221	8.7	5	11
C	467	18.4	165	6.5	223	8.78	10	22
D	467	18.4	220	8.66	223	8.78	17	37.5

NOTES:
Height is the maximum measure without clamping plates
In depth an additional 50 mm (2 in) should be reserved for feedback cabling



Accessory Brackets

Frames	Drive height w/ bracket	
	mm	in
A	474	18.66
B	476	18.74
C	558	21.96
D	644	25.35



Technical data

Supply connection	
AC Supply	3-phase 200 to 480 V AC +/-10% 50/60 Hz +/-5%
DC supply	270 to 650 V DC +/-10%
Motor connection	
Voltage	3-phase output voltage
Frequency	0 to +/-500 Hz
Motor control	Torque, velocity, position, closed loop vector control, open loop V/Hz
Motor types	Asynchronous motors (standard induction, servo) and synchronous motors (servo, high torque), linear servo motors, linear induction motors
Switching frequency / Control	4 / 8 kHz; Space vector modulation
Braking power connection	
Braking chopper	As standard in all types
Braking resistor	External resistor connected to Drive
Product compliance	
CE	Low Voltage Directive 2006/95/EC, EN 61800-5-1: 2007 Machinery Directive 2006/42/EC, EN 61800-5-2: 2007 EMC Directive 2004/108/EC, EN 61800-3: 2004 + A1: 2012
C-Tick	Pending
UL	cUL/UL508C (2010) Power Conversion Equipment.
RoHs	RoHS directive 2011/65/EU
TUV	STO function

Environmental limits	
Ambient temperature **Transport** **Storage** **Operation** **Temperature**	 -40 to +70°C (-40 to +158°F) -40 to +70°C (-40 to +158°F) 0 to +55°C (32 to 131°F), no frost allowed. Above 40°C (104°F) with derating of 2%/1°C
Cooling method **Air-cooled**	 Dry clean air
Altitude	0 to 2000 m (6560 ft) above sea level. Derating above 1000 m (3280 ft) 1%/100 m (328 ft)
Relative humidity	Max. 95%, no condensation allowed
Degree of protection	IP20 acc. to EN 60529; Open Type acc. to UL 508C
Contamination levels	No conductive dust allowed
Vibration	Sinusoidal vibration (EN 60068-2-6:2008): 2 to 9 Hz: 3.0 mm (0.12) 9 to 200 Hz: 1g
Shock	Half sine pulse (IEC 60068-2-27:2008): 10g for 11 ms
EMC	Category C3 with optional filter (according to EN 61800-3)
Functional safety	Safe torque off (STO according EN 61800-5-2) EN 61508 ed2: SIL 3, EN 62061: SIL CL 3, EN ISO 13849-1: PL e

AC Motion Control Drives
MotiFlex e180 List Prices

MotiFlex e180 Type Code	Description	Frame	List Price
MFE180-04AN-03A0-4+L516	MFE180 Resolver, Std. FW	A	$1,725
MFE180-04AN-03A0-4+L517	MFE180 Incr enc + halls, Std. FW	A	$1,725
MFE180-04AN-03A0-4+L518	MFE180 Ser enc + SinCos, Std. FW	A	$1,725
MFE180-04AN-03A0-4+L516+N8020	MFE180 Resolver, MINT 1-axis FW	A	$2,225
MFE180-04AN-03A0-4+L517+N8020	MFE180 Incr enc + halls, MINT 1-axis FW	A	$2,225
MFE180-04AN-03A0-4+L518+N8020	MFE180 Ser enc + SinCos, MINT 1-axis FW	A	$2,225
MFE180-04AN-05A0-4+L516	MFE180 Resolver, Std. FW	A	$2,050
MFE180-04AN-05A0-4+L517	MFE180 Incr enc + halls, Std. FW	A	$2,050
MFE180-04AN-05A0-4+L518	MFE180 Ser enc + SinCos, Std. FW	A	$2,050
MFE180-04AN-05A0-4+L516+N8020	MFE180 Resolver, MINT 1-axis FW	A	$2,550
MFE180-04AN-05A0-4+L517+N8020	MFE180 Incr enc + halls, MINT 1-axis FW	A	$2,550
MFE180-04AN-05A0-4+L518+N8020	MFE180 Ser enc + SinCos, MINT 1-axis FW	A	$2,550
MFE180-04AN-07A0-4+L516	MFE180 Resolver, Std. FW	A	$2,200
MFE180-04AN-07A0-4+L517	MFE180 Incr enc + halls, Std. FW	A	$2,200
MFE180-04AN-07A0-4+L518	MFE180 Ser enc + SinCos, Std. FW	A	$2,200
MFE180-04AN-07A0-4+L516+N8020	MFE180 Resolver, MINT 1-axis FW	A	$2,700
MFE180-04AN-07A0-4+L517+N8020	MFE180 Incr enc + halls, MINT 1-axis FW	A	$2,700
MFE180-04AN-07A0-4+L518+N8020	MFE180 Ser enc + SinCos, MINT 1-axis FW	A	$2,700
MFE180-04AN-016A-4+L516	MFE180 Resolver, Std. FW	B	$2,900
MFE180-04AN-016A-4+L517	MFE180 Incr enc + halls, Std. FW	B	$2,900
MFE180-04AN-016A-4+L518	MFE180 Ser enc + SinCos, Std. FW	B	$2,900
MFE180-04AN-016A-4+L516+N8020	MFE180 Resolver, MINT 1-axis FW	B	$3,400
MFE180-04AN-016A-4+L517+N8020	MFE180 Incr enc + halls, MINT 1-axis FW	B	$3,400
MFE180-04AN-016A-4+L518+N8020	MFE180 Ser enc + SinCos, MINT 1-axis FW	B	$3,400
MFE180-04AN-024A-4+L516	MFE180 Resolver, Std. FW	C	$3,025
MFE180-04AN-024A-4+L517	MFE180 Incr enc + halls, Std. FW	C	$3,025
MFE180-04AN-024A-4+L518	MFE180 Ser enc + SinCos, Std. FW	C	$3,025
MFE180-04AN-024A-4+L516+N8020	MFE180 Resolver, MINT 1-axis FW	C	$3,525
MFE180-04AN-024A-4+L517+N8020	MFE180 Incr enc + halls, MINT 1-axis FW	C	$3,525
MFE180-04AN-024A-4+L518+N8020	MFE180 Ser enc + SinCos, MINT 1-axis FW	C	$3,525
MFE180-04AN-031A-4+L516	MFE180 Resolver, Std. FW	C	$3,195
MFE180-04AN-031A-4+L517	MFE180 Incr enc + halls, Std. FW	C	$3,195
MFE180-04AN-031A-4+L518	MFE180 Ser enc + SinCos, Std. FW	C	$3,195
MFE180-04AN-031A-4+L516+N8020	MFE180 Resolver, MINT 1-axis FW	C	$3,695
MFE180-04AN-031A-4+L517+N8020	MFE180 Incr enc + halls, MINT 1-axis FW	C	$3,695
MFE180-04AN-031A-4+L518+N8020	MFE180 Ser enc + SinCos, MINT 1-axis FW	C	$3,695
MFE180-04AN-046A-4+L516	MFE180 Resolver, Std. FW	C	$4,100
MFE180-04AN-046A-4+L517	MFE180 Incr enc + halls, Std. FW	C	$4,100
MFE180-04AN-046A-4+L518	MFE180 Ser enc + SinCos, Std. FW	C	$4,100
MFE180-04AN-046A-4+L516+N8020	MFE180 Resolver, MINT 1-axis FW	C	$4,600
MFE180-04AN-046A-4+L517+N8020	MFE180 Incr enc + halls, MINT 1-axis FW	C	$4,600
MFE180-04AN-046A-4+L518+N8020	MFE180 Ser enc + SinCos, MINT 1-axis FW	C	$4,600
MFE180-04AN-060A-4+L516	MFE180 Resolver, Std. FW	D	$4,500
MFE180-04AN-060A-4+L517	MFE180 Incr enc + halls, Std. FW	D	$4,500
MFE180-04AN-060A-4+L518	MFE180 Ser enc + SinCos, Std. FW	D	$4,500
MFE180-04AN-060A-4+L516+N8020	MFE180 Resolver, MINT 1-axis FW	D	$5,000
MFE180-04AN-060A-4+L517+N8020	MFE180 Incr enc + halls, MINT 1-axis FW	D	$5,000
MFE180-04AN-060A-4+L518+N8020	MFE180 Ser enc + SinCos, MINT 1-axis FW	D	$5,000
MFE180-04AN-090A-4+L516	MFE180 Resolver, Std. FW	D	$5,800
MFE180-04AN-090A-4+L517	MFE180 Incr enc + halls, Std. FW	D	$5,800
MFE180-04AN-090A-4+L518	MFE180 Ser enc + SinCos, Std. FW	D	$5,800
MFE180-04AN-090A-4+L516+N8020	MFE180 Resolver, MINT 1-axis FW	D	$6,300
MFE180-04AN-090A-4+L517+N8020	MFE180 Incr enc + halls, MINT 1-axis FW	D	$6,300
MFE180-04AN-090A-4+L518+N8020	MFE180 Ser enc + SinCos, MINT 1-axis FW	D	$6,300

AC Motion Control Drives
MotiFlex e180 Options



CHK-01 mains AC choke



DCL-01 compact mains DC choke



JBR-01 compact braking resistor



JFI-02 ultra-compact and slim, mains EMC/RFI filter

MotiFlex e180 options[3]

Name	Description	Field kit code	Inductance (µH)		List price
Chokes, filters, and resistors					
Mains AC line choke (external to drive) [1] (AC or DC choke is needed with overload modes 110% and 150% for C and D Frames to achieve the listed ratings.)	Frame A, -03A0	CHK-01	6370		$175
	Frame A, -05A0, -07A0	CHK-02	4610		$250
	Frame B, -016A	CHK-04	1475		$335
	Frame C, -024A, -031A	CHK-05	1130		$560
	Frame C, -046A	CHK-06	700		$700
	Frame D, -060A	CHK-07	450		$970
	Frame D, -090A	CHK-08	355		$1,050
Compact DC choke for MotiFlex e180 (mounted on drive) [2] (AC or DC choke is required for C and D frames for 110% and 150% to achieve the listed ratings.)	Frame C, -024A, -031A	DCL-01	1540		$565
	Frame C, -046A	DCL-02	960		$700
	Frame D, -060A	DCL-03	620		$975
	Frame D, -090A	DCL-04	490		$1,050
Ultra-compact and slim mains EMC/RFI filter Category C3	Frame A (mounted on drive), -03A0, -05A0, -07A0	JFI-02	n/a		$164
	Frame B (mounted on drive), -016A	JFI-03			$257
	Frame C, -024A, -031A, -046A	JFI-05			$378
	Frame D, -060A, -090A	JFI-07			$606
Compact braking resistor for MotiFlex e180			Watts	Resistance	
	Frame A, -03A0, -05A0, -07A0	JBR-01	145	120Ω	$230
	Frame A, -03A0, -05A0, -07A0	JBR-03	185	80Ω	$272
	Frame B, -016A	JBR-04	360	40Ω	$502
	Frame C, -024A, -031A	JBR-05	570	20Ω	$551
	Frame C and D, -046A, -060A, -090A	JBR-06	790	13Ω	$704

Notes

1) When is a mains choke required?
The MotiFlex e180 does not necessarily require a mains choke for operation. The need for a choke should be determined on a case-by-case basis.
Mains chokes are typically used to:
- reduce harmonics in the input current
- achieve a reduction in the rms input current
- reduce supply disturbance and low-frequency interference
- increase the allowed DC bus continuous power
- ensure even current distribution in common DC configuration
- **achieve the listed 110% and 150% ratings for Frames C and D Drives (-024-4 to -090A-4)**

2) When is a DC choke required?
A DC choke can be installed as an alternative to a mains choke in Frame C and D MotiFlex e180 Drives. The DC choke is installed directly above the Drive and is cooled by the drive's exhaust air. The MotiFlex e180 does not necessarily require a DC choke for operation. The need for a choke should be determined on a case-by-case basis.
DC chokes are typically used to:
- reduce harmonics in the input current
- achieve a reduction in the rms input current
- reduce supply disturbance and low-frequency interference
- increase the allowed DC bus continuous power
- ensure even current distribution in common DC configuration
- **achieve the listed 110% and 150% ratings for Frames C and D Drives (-024-4 to -090A-4)**

3) See MotiFlex e180 User's Manual (3AXD50000019946) for details

AC Motion Control Drives
MotiFlex e180 Options and Accessories

Frame size	A	B	C	D
Features				
Braking chopper	●	●	●	●
Braking resistor	☐	☐	☐	☐
AC choke	☐	☐	☐	☐
DC choke	–	–	☐	☐
Mains filter (EMC) / C3	☐	☐	☐	☐
Installation features				
Air cooling (fan)	●	●	●	●
Removable connectors Control / Power	● / ●	● / ●	● / –	● / –
Side-by-side mounting	●	●	●	●
DIN rail mounting	●	●	–	–
Horizontal mounting	●	●	●	●

● Standard

☐ Option, external

– Not available



Frame Size A Frame Size B Frame Size C Frame Size D

AC Motion Control Drives

Catalog identification matrix for Baldor FlexDrive″, Flex+Drive″, and MintDrive″ (For existing applications only. Use MicroFlex/MotiFlex for new applications.)

[ ] [ ] H [ ] A [ ] [ ] [ ] [ ] – [ ] [ ] 2 [ ]

CONTROL FAMILY
MDH = MintDrive″
FPH = Flex+Drive″
FDH = FlexDrive″

INPUT VOLTAGE
1 = 115 V 1ϕ
2 = 230 V 1ϕ
4 = 230-460 V 3ϕ

CURRENT CODE
A02 = 2.5 amps
A05 = 5 amps
A07 = 7.5 amps
A15 = 15 amps
A20 = 20 amps
A27 = 27.5 amps

ENCLOSURE TYPE
T = Panel mount with internal power supply

BRAKING OPTIONS
R = Requires external resistor
B = Built in regen resistor

FEEDBACK OPTIONS
R = Resolver
E = Encoder
D = Absolute encoder (EnDat multi-turn)

BUS OPTIONS*
N = None
B = 2 x Dual CAN ports and extra I/O (MDH)
2 x CANopen ports and extra I/O (FPH)
(not available on FDH models)
C = 2 x CANopen ports
D = DeviceNet
P = Profibus-DP

SERIAL PORT
2 = RS232/RS485

LOGIC SUPPLY VOLTAGE OPTIONS
0 = Internally generated
3 = External customer supplied +24 V DC

NOTES: Not all options are available on all controls. Contact your local Baldor office.
*Options may increase product width.

Options chart - list price adder

Description	Code	List price adder
Feedback options		
Resolver	R	$133
Encoder	E	N/C
Absolute encoder (EnDat)	D	$133
Bus options		
None	N	Std
2 x Dual CAN ports and extra I/O (MDH) 2 x CANopen ports and extra I/O (FPH)	B	$610
2 x CANopen ports	C	$325
DeviceNet	D	$625
Profibus	P	$570
Serial port options		
RS232 / RS485	2	Std
Logic voltage supply options		
Internally generated	0	Std
External customer supplied +24 V DC	3	N/C

NOTES: STD = Standard, N/C = No charge

AC Motion Control Drives

Baldor MintDrive″ (For existing applications only. Use MicroFlex/ MotiFlex for new applications.)



Baldor MintDrive″ resolver feedback-based units

Input voltage		1 phase 115 V AC		1 phase 230 V AC		3 phase 230-460 V AC	
Bus voltage		160 V DC		300 V DC		300-650 V DC	
Output current amps (rms)		Catalog number **	List price	Catalog number **	List price	Catalog number **	List price
Cont.	Peak						
Customer must supply +24 V DC for logic power							
2.5	5	MDH1A02TB-RN23 ***	$3,030	MDH2A02TB-RN23 ***	$3,030	MDH4A02TB-RN23 ***	$4,050
5	10	MDH1A05TB-RN23 ***	$3,305	MDH2A05TB-RN23 ***	$3,305	MDH4A05TB-RN23 ***	$4,139
7.5	15	MDH1A07TR-RN23 *	$3,499	MDH2A07TR-RN23 *	$3,499	MDH4A07TR-RN23 *	$4,198
–	30	–	–	–	–	MDH4A15TR-RN23 *	$4,908
–	40	–	–	–	–	MDH4A20TR-RN23 *	$5,543
–	55	–	–	–	–	MDH4A27TR-RN23 *	$6,178
With 2 CAN ports and extra I/O - customer must supply +24 V DC for logic power							
2.5	5	MDH1A02TB-RB23 ***	$3,758	MDH2A02TB-RB23 ***	$3,758	MDH4A02TB-RB23 ***	$4,776
5	10	MDH1A05TB-RB23 ***	$4,033	MDH2A05TB-RB23 ***	$4,033	MDH4A05TB-RB23 ***	$4,865
7.5	15	MDH1A07TR-RB23 *	$4,225	MDH2A07TR-RB23 *	$4,225	MDH4A07TR-RB23 *	$4,924
15	30	–	–	–	–	MDH4A15TR-RB23 *	$5,634
20	40	–	–	–	–	MDH4A20TR-RB23 *	$6,270
27.5	55	–	–	–	–	MDH4A27TR-RB23 *	$6,904

Baldor MintDrive″ encoder feedback-based units

Customer must supply +24 V DC for logic power							
2.5	5	MDH1A02TB-EN23 ***	$2,877	MDH2A02TB-EN23 ***	$3,055	MDH4A02TB-EN23 ***	$3,891
5	10	MDH1A05TB-EN23 ***	$3,148	MDH2A05TB-EN23 ***	$3,148	MDH4A05TB-EN23 ***	$3,979
7.5	15	MDH1A07TR-EN23 *	$3,340	MDH2A07TR-EN23 *	$3,340	MDH4A07TR-EN23 *	$4,039
15	30	–	–	–	–	MDH4A15TR-EN23 *	$4,748
20	40	–	–	–	–	MDH4A20TR-EN23 *	$5,385
27.5	55	–	–	–	–	MDH4A27TR-EN23 *	$6,020
With 2 CAN ports and extra I/O – customer must supply +24 V DC for logic power							
2.5	5	MDH1A02TB-EB23 ***	$3,598	MDH2A02TB-EB23 ***	$3,758	MDH4A02TB-EB23 ***	$4,618
5	10	MDH1A05TB-EB23 ***	$3,874	MDH2A05TB-EB23 ***	$4,033	MDH4A05TB-EB23 ***	$4,705
7.5	15	MDH1A07TR-EB23 *	$4,066	MDH2A07TR-EB23 *	$4,225	MDH4A07TR-EB23 *	$4,765
15	30	–	–	–	–	MDH4A15TR-EB23 *	$6,076
20	40	–	–	–	–	MDH4A20TR-EB23 *	$6,805
27.5	55	–	–	–	–	MDH4A27TR-EB23 *	$7,500

Programming cable for FlexDrive″, Flex+Drive″ and MintDrive″	Length		Catalog number	List price
	Feet	Meters		
RS232 serial cable for use with PC	3	9.8	CBL001-501	$164

Accessories

Resolver 9-15 pin converter	OPT026-501	$118
Feedback connector kit for series II controller (resolver)	OPT-ACC001-502	$61
Feedback connector kit for series II controller (encoder)	OPT-ACC001-503	$61
Tertiary I/O connector kit for series II controller	OPT-ACC001-504	$61
Power and I/O connector kit for series II controller	OPT-ACC001-518	$61

Shaded areas are stocked products.

NOTES:

*Order regen resistor separately.
**24 V required for operation of I/Os (customer supplied).
***2.5 amp models have internal 20W 175 ohm (115/230 V AC) or 300W 200 ohm (230-460 V AC) regen resistor.
5 amp models have internal 40W 90 ohm (115/230 V AC) or 300W 200 ohm (230-460 V AC) regen resistor.
Order encoder model for operation with linear motors. Order motor and feedback cables separately.
Units with BUS option N have 8/3 I/O and no CAN ports. Price of - RN20 same as - RN23; Price of - EN20 same as - EN23.
For complete details of catalog I/D, see Catalog identification matrix.
The FDH2, FPH2 and MDH2 10A and 15A are not available.
Contact Customer Service for part numbers not listed.

AC Motion Control Drives

Baldor FlexDrive", Flex+Drive" (For existing applications only. Use MicroFlex/MotiFlex for new applications.)



Baldor FlexDrive" resolver feedback-based units

Input voltage		1 phase 115 V AC		1 phase 230 V AC		3 phase 230-460 V AC	
Bus voltage		160 V DC		300 V DC		300-650 V DC	
Output current amps (rms)		Catalog number **	List price	Catalog number **	List price	Catalog number **	List price
Cont.	Peak						
Customer must supply +24 V DC for logic power							
2.5	5	FDH1A02TB-RN23 ***	$2,400	FDH2A02TB-RN23 **	$2,400	FDH4A02TB-RN23 ***	$3,310
5	10	FDH1A05TB-RN23 ***	$2,524	FDH2A05TB-RN23 ***	$2,525	FDH4A05TB-RN23 ***	$3,409
7.5	15	FDH1A07TR-RN23 *	$2,716	FDH2A07TR-RN23 *	$2,718	FDH4A07TR-RN23 *	$3,511
15	30	–	–	–	–	FDH4A15TR-RN23 *	$4,218
20	40	–	–	–	–	FDH4A20TR-RN23 *	$4,855
27.5	55	–	–	–	–	FDH4A27TR-RN23 *	$5,489

Baldor FlexDrive" encoder feedback-based units

Customer must supply +24 V DC for logic power							
2.5	5	FDH1A02TB-EN23 ***	$2,241	FDH2A02TB-EN23 ***	$2,241	FDH4A02TB-EN23 ***	$3,151
5	10	FDH1A05TB-EN23 ***	$2,366	FDH2A05TB-EN23 ***	$2,366	FDH4A05TB-EN23 ***	$3,250
7.5	15	FDH1A07TR-EN23 *	$2,560	FDH2A07TR-EN23 *	$2,560	FDH4A07TR-EN23 *	$3,351
15	20	–	–	–	–	FDH4A15TR-EN23 *	$4,060
20	40	–	–	–	–	FDH4A20TR-EN23 *	$4,696
27.5	55	–	–	–	–	FDH4A27TR-EN23 *	$5,333

Programmable indexer and brushless Motion Control

Baldor Flex+Drive" resolver feedback-based units

Input voltage		115 V AC 1φ		230 V AC 1φ		230-460 V AC 3φ	
Bus voltage		160 V DC		300 V DC		300-650 V DC	
Output current amps (rms)		Catalog number **	List price	Catalog number **	List price	Catalog number **	List price
Cont.	Peak						
Customer must supply +24 V DC for logic power							
2.5	5	FPH1A02TB-RN23 ***	$2,635	FPH2A02TB-RN23 ***	$2,635	FPH4A02TB-RN23 ***	$3,679
5	10	FPH1A05TB-RN23 ***	$2,914	FPH2A05TB-RN23 ***	$2,914	FPH4A05TB-RN23 ***	$3,771
7.5	15	FPH1A07TR-RN23 *	$3,108	FPH2A07TR-RN23 *	$3,108	FPH4A07TR-RN23 *	$3,853
15	30	–	–	–	–	FPH4A15TR-RN23 *	$4,560
20	40	–	–	–	–	FPH4A20TR-RN23 *	$5,198
27.5	55	–	–	–	–	FPH4A27TR-RN23 *	$5,835

Baldor Flex+Drive" encoder feedback-based units

Customer must supply +24 V DC for logic power							
2.5	5	FPH1A02TB-EN23 ***	$2,476	FPH2A02TB-EN23 ***	$2,476	FPH4A02TB-EN23 ***	$3,521
5	10	FPH1A05TB-EN23 ***	$2,755	FPH2A05TB-EN23 ***	$2,755	FPH4A05TB-EN23 ***	$3,613
7.5	15	FPH1A07TR-EN23 *	$2,949	FPH2A07TR-EN23 *	$2,949	FPH4A07TR-EN23 *	$3,693
15	30	–	–	–	–	FPH4A15TR-EN23 *	$4,401
20	40	–	–	–	–	FPH4A20TR-EN23 *	$5,038
27.5	55	–	–	–	–	FPH4A27TR-EN23 *	$5,676

Shaded areas are stocked products.

NOTES:

*Order regen resistor separately.
**24 V required for operation of I/Os (customer supplied).
***2.5 amp models have internal 20W 175 ohm (115/230 V AC) or 300W 200 ohm (230-460 V AC) regen resistor.
5 amp models have internal 40W 90 ohm (115/230 V AC) or 300W 200 ohm (230-460 V AC) regen resistor.

Order encoder model for operation with linear motors.
Order motor and feedback cables separately.
Units with BUS option N have 8/3 I/O and no CAN ports.
Price of - RN20 same as - RN23; price of - EN20 same as - EN23 .
For complete details of catalog I/D, see Catalog identification matrix.
The FDH2, FPH2 and MDH2 10A and 15A are not available.
Contact Customer Service for part numbers not listed.

AC Motion Control Drives
Options



Features:
- Simple interface programmable in MInt
- CANopen and RS232/485 communications
- 4 line x 20 character display
- Numerical keypad + function keys
- Optional DS401 CANopen I/O modules: 4 dig in and 4 dig out

Operator panels

Description	Catalog number	List price
CANopen/serial 4x20 character LCD display (Mint programmable)	KPD202-501	$1,288
4 dig In, 4 dig out I/O option for keypad	KPD-OPTIO-1	$243

CAN cables

Description	Length		Catalog number	List price
	Meters	Feet		
CANopen cable (RJ45 - flying lead)	0.25	0.8	CBL002CM-CSS1	$82
	0.5	1.6	CBL005CM-CSS1	$86
	1	3.3	CBL010CM-CSS1	$89
	2	6.6	CBL020CM-CSS1	$92
	5	16	CBL050CM-CSS1	$120
	10	33	CBL100CM-CSS1	$144
	20	67	CBL200CM-CSS1	$230
CANopen cable (RJ45 - RJ45)	0.25	0.8	CBL002CM-CSS2	$47
	0.5	1.6	CBL005CM-CSS2	$50
	1	3.3	CBL010CM-CSS2	$53
	2	6.6	CBL020CM-CSS2	$65
	5	16	CBL050CM-CSS2	$88
	10	33	CBL100CM-CSS2	$132
	20	67	CBL200CM-CSS2	$226
Adaptor RJ45 (CANopen) to D-type male (fits HMIs)	–	–	OPT-CNV001	$100
Adaptor RJ45 (CANopen) to D-type female (fits e100 controllers and Wago couplers)	–	–	OPT-CNV002	$100

NOTES: Suffix "W" indicates ABB branded products

Shaded areas are stocked products.

AC Motion Control Drives
Communication cables and regen resistors

Communication cables

Description	Length		Catalog number	List price
	Meters	Feet		
For use with FlexDrive", Flex+Drive", MintDrive" and MicroFlex				
RS232 Serial Cable for use with PC	3	9.8	CBL001-501	$164



Ethernet communication cables

Description	Length		Catalog number	List price
	Meters	Feet		
Ethernet/shielded CAT5e RJ45	0.2	0.7	CBL002CM-EXS	$42
	0.5	1.6	CBL005CM-EXS	$44
	1	3.2	CBL010CM-EXS	$47
	2	6.5	CBL020CM-EXS	$56
	5	16.3	CBL050CM-EXS	$78
	10	32.6	CBL100CM-EXS	$130

Regen resistors - for use with MintDrive", Flex+Drive", FlexDrive"



Control current rating	Input voltages												List price
	115 V AC			1 phase 230 V AC			3 phase 230 V AC			3 phase 230-460 V AC			
	Catalog	Resistance	Watts	Catalog	Resistance	Watts	Catalog	Resistance	Watts	Catalog	Resistance	Watts	
3	–	-	–	RG56	56 Ω	44	–	-	–	–		–	$176
6 - 9	–	-	–	RG39	39 Ω	100	–	-	–	–		–	$282
7.5	RG22	22 Ω	100	RG39	39 Ω	100	–	-	–	RG68	69 Ω	320	$282
15 - 20	–	-	–	–	-	–	RG10	10 Ω	320	RG27A	27 Ω	320	$325
27.5	–	-	–	–	-	–	–	-	–	RG11	11 Ω	640	$561

Regen resistors - for use with MicroFlex, MicroFlex e100, MicroFlex e150 (1 phase or 3 phase 115-230 V AC)

Control current rating	Catalog	Resistance	Watts	List price
3-9	RGJ139	39 Ω	100	$150
	RGJ160	60 Ω	100	$115
	RGJ260	60 Ω	200	$135
	RGJ360	60 Ω	300	$162

Regen resistors - for use with MotiFlex e100 (3 phase 180-528 V AC)

Control current rating	Minimum resistance (ohms)		Catalog	Resistance	Watts	List price
	Single drive	Shared DC bus				
1 - 6 Size A	60	150	RGJ160	60 Ω	100	$115
			RGJ260	60 Ω	200	$135
			RGJ360	60 Ω	300	$162
			RGJ1150	150 Ω	100	$150
			RGJ2150	150 Ω	200	$135
			RGJ3150	150 Ω	300	$162
10 - 16 Size A	33	68	RGJ523	23 Ω	500	$241
			RGJ533	33 Ω	500	$252
			RGJ368	68 Ω	300	$200
21 - 33 Size B	15	60	RGJ515	15 Ω	500	$252
			RGJ360	60 Ω	300	$162

Control current rating	Single drive	Shared DC bus	Catalog No.	Ohms	Watts	List price	PowerOhm P/N	Ohms	Watts	Enclosure Type	Weight (lb)	Dims (WxDxH) (in)
48 - 65 Size C	7.5	33	RGA1210 *	10	1200	$433	P14494-57	10	1250	GCE3	13	12x10x5
			RGA2410 *	10	2400	$649	ABB-41168	11	2400	GCE6	17	12x19x5
			RGA4810 *	10	4800	$909	ABB-48431-068	11	4400	GCE9	24	26.5x10x5
			RGA4840 *	40	4800	$1,165	ABB-43169	42	4410	GCE12	30	16.5x13x5

* Not available

P14494-57:
1.Customers must include the thermal switch contact in the ABB PowerOhm resistor in the electrical design for the machine/system, so the system shuts down if the resistor overheats.
2.The previous RGA1210 and alternative P14494-57 are only suitable for use with a 48A or 65A MotiFlex e100 operating as a stand-alone Drive.
3.The P14494-57 should not be used if these Drives are being used as a DC bus master (in this case a minimum resistance of 33 ohms is required).
4.This Resistor assembly includes the coils, mounted in an indoor screened enclosure, normally closed thermal switch and (2) point terminal block for resistor connections.

ABB-41168:
1.Customers must include the thermal switch contact in the ABB PowerOhm resistor in the electrical design for the machine/system, so the system shuts down if the resistor overheats.
2.The previous RGA2410 and alternative ABB-41168 are only suitable for use with a 48A or 65A MotiFlex e100 operating as a stand-alone Drive.
3.The ABB-41168 should not be used if these Drives are being used as a DC bus master.
4.This Resistor assembly includes the coils, mounted in an indoor screened enclosure, normally closed thermal switch and (2) point terminal block for resistor connections.

Shaded areas are stocked products.

AC Motion Control Drives
Filters and power supplies



CE filters for use with MintDrive", Flex+Drive", FlexDrive", MicroFlex, MicroFlex e100, MicroFlex e150

Control continuous current rating	Input voltages						Customer supplied 24 V DC	
	115 V AC		1 phase 230 V AC		3 phase 230-460 V AC			
	Catalog no.	List price	Catalog no.	List price	Catalog no.	List price	Catalog no.	List price
2.5, 3	FI0015A00	$94	FI0015A00	$94	FI0018A00	$191	All models FI0014A00	$94
5, 6	FI0015A02	$151	FI0015A02	$151	FI0018A00	$191		
7.5, 9	FI0029A00	$334	FI0029A00	$334	FI0018A00	$191		
15, 20, 27.5	–	–	–	–	FI0018A01	$320		

For use with MotiFlex e100 230-460 V AC 50/60 Hz

1 - 3	–	–	–	–	FI0035A00	$190	All models FI0014A00	$94
6 - 10.5	–	–	–	–	FI0035A01	$225		
10 - 16	–	–	–	–	FI0035A02	$258		
20	–	–	–	–	FI0035A03	$386		
26	–	–	–	–	FI0035A04	$532		
33.5 - 65	–	–	–	–	FI0035A05	$533		





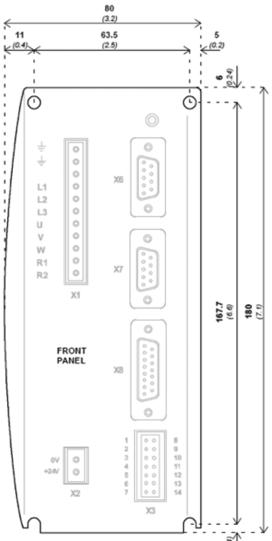


24V power supply
For use with Motion Controllers, AC Motion Control drives, control panels and PLC AC500

Continuous current	Catalog no.	Description	List price
0.75	3AUA0000173059	1SVR427030R000 Power supply CP-E 24/0.75	$119
1.25	3AUA0000173060	1SVR427031R000 Power supply CP-E 24/1.25	$129
2.5	3AUA0000168686	1SVR427032R000 Power supply CP-E 24/2.5	$162
5	3AUA0000170380	1SVR427024R000 Power supply CP-C 24/5.0	$370
10	3AUA0000173081	1SVR427025R000 Power supply CP-C 24/10.0	$570

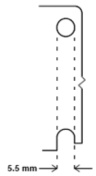
Shaded areas are stocked products.

AC Motion Control Drives
Dimensions and weights



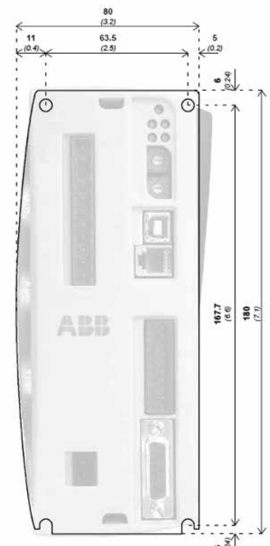
MicroFlex dimensions and weight

Mounting hole and slot detail



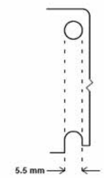
Dimensions shown as: mm (inches).
Depth: 157 mm (6.2 in)
Weight: 1A: 1.45 kg (3.2 lb)
3A: 1.45 kg (3.2 lb)
6A: 1.50 kg (3.3 lb)
9A: 1.55 kg (3.4 lb)

7.1 in. (180 mm) H
3.2 in. (80 mm) W
6.2 in. (157 mm) D



MicroFlex e100 dimensions and weight

Mounting hole and slot detail



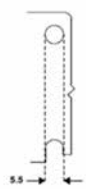
Dimensions shown as: mm (inches).
Depth: 157 mm (6.2 in)
Weight: 3A: 1.45 kg (3.2 lb)
6A: 1.50 kg (3.3 lb)
9A: 1.55 kg (3.4 lb)

7.1 in. (180 mm) H
3.2 in. (80 mm) W
6.2 in. (157 mm) D



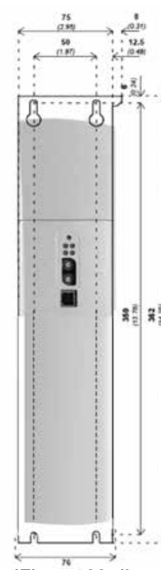
MicroFlex e150 dimensions and weight

Mounting hole and slot detail



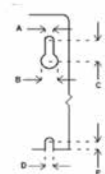
Dimensions shown as: mm (inches).
Depth: 157 mm (6.2 in)
Weight: 3A: 1.45 kg (3.2 lb)
6A: 1.50 kg (3.3 lb)
9A: 1.55 kg (3.4 lb)

7.1 in. (180 mm) H
3.23 in. (82 mm) W
6.2 in. (157 mm) D



MotiFlex e100 dimensions and weight

Size A Dimensions – 1.5A ~ 16A models
Mounting hole and slot detail

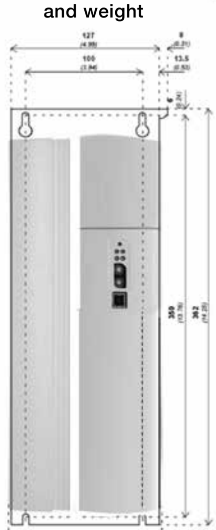


A 6 mm
B 12 mm
C 12.7 mm
D 6 mm
E 6 mm

Dimensions shown as: mm (inches).
Depth: 260 mm (10.24 in)
Weight: 1.5 A: 1.90 kg (4.2 lb)
3 A: 1.90 kg (4.2 lb)
6 A: 1.90 kg (4.2lb)
10.5 A: 4.80 kg (10.6 lb)
16 A: 5.80 kg (12.8lb)

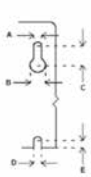
14.25 in. (362 mm) H
2.95 in. (75 mm) W
10.24 in. (260 mm) D

NOTE: The case is 76 mm wide, which is 1 mm wider than the mounting plate. For this reason, when mounting multiple drives side-by-side for DC bus sharing, it is advisable to use the method described in section 3.2.4.1 to avoid errors when marking hole positions.



MotiFlex e100 dimensions and weight 21 A - 33.5 A models

Size B Dimensions – 21A ~ 33.5A models
Mounting hole and slot detail

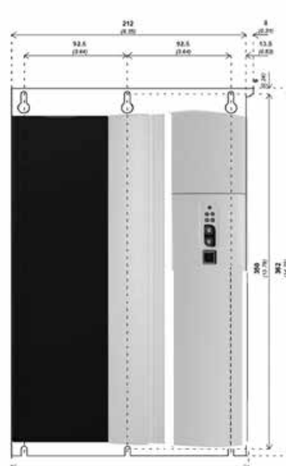


A 6 mm
B 12 mm
C 12.7 mm
D 6 mm
E 6 mm

Dimensions shown as: mm (inches).
Depth: 260 mm (10.24 in)
Weight: 21A: 5.85 kg (12.9 lb)
26A: 6.35 kg (14.0 lb)
33.5A: 6.35 kg (14.0 lb)

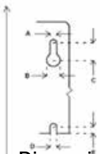
14.25 in. (362 mm) H
4.99 in. (127 mm) W
10.24 in. (260 mm) D

NOTE: The case is 128 mm wide, which is 1 mm wider than the mounting plate. For this reason, when mounting multiple drives side-by-side for DC bus sharing, it is advisable to use the method described in section 3.2.4.1 to avoid errors when marking hole positions.



MotiFlex e100 dimensions and weight 48 A - 65 A models

Size C Dimensions – 48A ~ 65A models
Mounting hole and slot detail



A 6 mm
B 12 mm
C 12.7 mm
D 6 mm
E 6 mm

Dimensions shown as: mm (inches).
Depth: 260 mm (10.24 in)
Weight: 48A: 12.45 kg (27.4 lb)
65A: 12.45 kg (27.4 lb)

14.25 in. (362 mm) H
8.35 in. (212 mm) W
10.24 in. (260 mm) D

NOTE: The case is 213 mm wide, which is 1 mm wider than the mounting plate. For this reason, when mounting multiple drives side-by-side for DC bus sharing, it is advisable to use the method described in section 3.2.4.1 to avoid errors when marking hole positions.

AC Motion Control Drives
MicroFlex e150 motion demonstrator

The ABB MicroFlex e150 servo drive combines multi-protocol Ethernet technology, advanced multitasking programming and single phase operation. The e150 also provides safe torque off to IEC 61800-5-2 SIL3 PLe, an RS485 port with Modbus RTU support, a universal digital feedback input, dual encoder input for master follower applications, 10 digital inputs (2 high speed position latching), 7 digital outputs, 2 analogue inputs and 1 analogue output. It also has compatibility with the Mint ActiveX controls, available for PC host programming.

To promote the features of this product, the e150 motion demonstrator contains a MicroFlex e150 servo drive and a BSM servo motor with a high resolution feedback device. This unit comes in a convenient and portable format and can be used to demonstrate the features and capabilities of the e150 drive and also be used as a powerful training and support tool.

Features
- 3A MicroFlex e150 servo drive
- BSM60R brushless servo motors with SmartAbs high resolution encoder feedback
- 7 input switches and 6 output LED's on motion controller
- Analogue pot control
- 1 safe torque off input switch
- Built in power supply with 24V dc output terminals for powering external devices
- Pelican case included (with space for additional items not included such as PLC or HMI).

Programming tools
The e150 demonstrator works with the Mint WorkBench software as a configuration, programming and diagnostic tool. This provides a convenient demonstration, training and support system. An example program is also available for those not so familiar with the Mint programming language and the Mint WorkBench software. This can be used to demonstrate commonly used software motion features such as: homing, jogging and positional moves. More advanced motion can also be demonstrated if combined with an encoder splitter board and an external encoder signal source.

e150 demonstrator
The e150 demonstrator can be used stand-alone for demonstrating Mint features. It also works well as a training aid and can be used by technical support teams to simulate customer applications.

AC500 PLC
One or more e150 demonstrators can be used to create an EtherCAT motion system when combined with an ABB AC500 PLC.

CP600 HMI
Enhance the functionality of the demo by adding an ABB CP600 HMI. This connects seamlessly to the e150 drive over Ethernet using the Modbus TCP protocol or over RS485 using Modbus RTU.

Ordering information

Catalog	List price
DEMO-E150-001	$4,000

NOTE: No country-specific power cord is supplied with the unit.

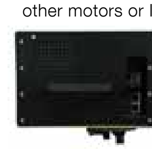
IO controls
- 6 LED output indicators
- 7 input switches
- 1 Safe Torque Off / Enable input switch

Analogue Input control
- 0 – 10V pot for analogue source

24Vdc output terminals
- Onboard power supply
- Can power auxiliary devices such as HMI's or PLC's



MicroFlex e150 Servo drives
- Single phase 110 or 230Vac supply
- Local IO can be accessed using built in LED's and switches
- Terminals accessible for connection to other motors or IO devices



BSM60R Motors
- Brushless AC servo motors
- SmartAbs encoder with 131072cpr resolution

AC Motion Control Drives
e100 product demonstrator

The e100 motion product demonstrator is a compact two axis e100 ABB motion control system for demonstrating the capabilities of e100 motion controllers and drives.

It combines a NextMove e100 motion controller, two MicroFlex e100 servo drives and two small BSM servo motors in a convenient and portable format and can be used to demonstrate the features and capabilities of the products and also be used as a powerful training and support tool.

Features

- 16 Axis NextMove e100 Ethernet Motion controller
- 3A MicroFlex e100 Servo drives
- BSM60R brushless servo motors with encoder feedback
- 8 input switches and 8 output LED's on motion controller
- 2 input switches and 2 output LED's on each drive
- Built in power supply with 24Vdc output terminals for powering external devices
- Stepper channels available to connect to external stepper motors
- Internal virtual axes can be used to expand the axis count to simulate real motion systems
- Example programs available from dedicated website
- Pelican case included.

Programming tools

The e100 Demonstrator works with the Mint WorkBench software as a configuration, programming and diagnostic tool. An example program is also available, for those not so familiar with the Mint programming language and the Mint WorkBench software. This can be used to demonstrate commonly used software motion features such as:

- Homing
- Jogging
- Interpolated motion
- Triggering Moves on Position
- Cam profiles
- Flying shears

e100 family demonstrator

In addition to showing the e100 product family, real-time Ethernet and ease of cabling, the e100 demonstrator can be used stand-alone for demonstrating Mint features. A pre-written example program is available to show different motion types using the board switches. You can also use this to demonstrate drive commissioning, which is extremely easy with our software wizards and auto-tuning features.

Windows™ host application

There is also a Windows-based host application program written to demonstrate how PC's can be easily used to create an interface with Mint motion controllers using our Mint ActiveX controls. This software provides a graphical method to control the motion type example program and adds a few additional features not accessible from the switches. This program also features an auto-reconfiguration function to get the demo kit back to a working configuration.

Mint programming

For the most experienced Mint programmer, the demonstrator is a convenient way to show the powerful features of the Mint WorkBench software. This also enables application developers to support customers. The demonstrator is an ideal tool that enables the creation of new applications and the recreation of existing applications offline and remote from the real machine.

Ordering information

Catalog	List price
DEMO-E100-002	$6,787

NextMove e100
- Multi-axis motion controller
- Supports up to 16 axis
- EPL Servo, Analogue Servo, Stepper or Virtual axis types

24Vdc output terminals
- On-board power supply
- Can power auxilliary devices such as HMI or CAN IO

Output LEDs
- 8 connected to NextMove
- 2 for each of the MicroFlex drives

Input Switches
- 8 connected to NextMove
- 2 for each of the MicroFlex drives



2 x MicroFlex e100 Servo drives
- Single-phase 230Vac supply
- Local IO can be accessed using built-in LEDs and switches
- Terminals accessible for connection to other motors or IO devices

2 x BSM60R Motors
- Brushless AC servo motors
- 2000 ppr encoder and hall feedback

AC Motion Control Drives
e180 motion demonstrator

The MotiFlex e180 servo drive combines multiprotocol real time Ethernet technology, advanced multitasking programming, safety features, a range of motor feedback options, master encoder input and encoder output, 8 digital inputs (2 high speed position latching), 4 digital outputs, 2 analogue inputs and 1 analogue output. It also has compatibility with the Mint ActiveX controls, available for PC host programming.

To promote the features of this product the e180 Motion Demonstrator contains a MotiFlex e180 servo drive and a BSM servo motor with a high resolution feedback device. This convenient and portable unit can be used to demonstrate the features and capabilities of the MotiFlex e180 drive and also be used as a powerful training and support tool.

Features

- MotiFlex e180 servo drive
- BSM60R brushless servo motor with SmartAbs high resolution encoder feedback
- 8 input switches and 4 output LEDs
- Analogue input potentiometer
- Emergency stop Safe Torque Off input switch
- Built in power supply with 24 V DC output terminals for powering external devices
- Wheeled Pelican™ case is included
- Requires 1 phase 230V AC supply

Programming tools

The Motion Demonstrator works with the Mint WorkBench software as a configuration, programming and diagnostic tool. This provides a convenient demonstration, training and support system. The unit can be used to demonstrate commonly used software motion features such as:- homing, jogging and positional moves. More advanced motion can also be demonstrated if combined with an external encoder signal source.

MotiFlex e180 Motion Demonstrator

The e180 demonstrator can be used stand-alone for demonstrating Mint features to customers. It also works well as a training aid and can be used by technical support teams to simulate customer applications.

AC500 PLC

One or more Motion Demonstrators can be used to create an EtherCAT motion system when combined with an AC500 PLC.

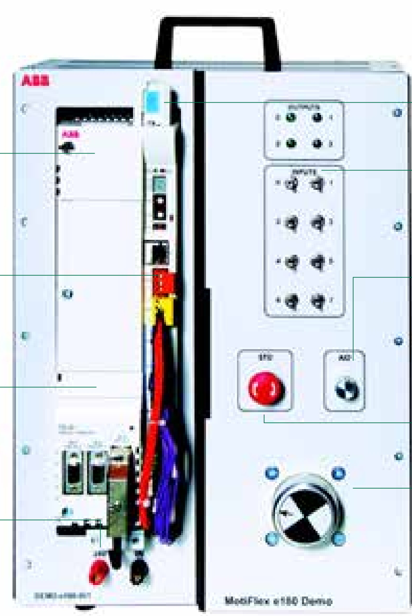
CP600 HMI

Enhance the functionality of the Motion Demonstrator by adding a CP600 HMI. This connects seamlessly to the MotiFlex e180 drive over Ethernet using the Modbus TCP protocol.

Ordering information

Catalog	List price
DEMO-E180-001	$6,787

NOTE: No country-specific power cord is supplied with the unit.



AC Motion Control Drives
Product training

Introduction to Sizing and Applying Motion with PLC/Motion Demonstration

This course is designed to help participants recognize and understand Servo motion applications. Participants will learn to determine application torque requirements and use the matched Performance sizing software for Servo motor selection. They will also size and select Servo drives and/or Motion Controllers appropriate for the application. The course offers hands on labs to demonstrate the MINT™ WorkBench software tool with which, the participant will commission and tune MicroFlex e100 Servo drives. The class includes a demonstration of ABB's AC500 PLC performing motion control using the MicroFlex e150 Servo drive via Modbus TCP/IP and the Generic Drive Interface. The goal of this course is to educate students in the proper selection of Servo motor and Motion Control hardware, MINT motion capabilities, application solutions, and tools available to help size and apply motion products.

Audience

Technical and sales professionals and authorized channel partners who work with ABB Motion Control Products and Rotary Servo motors. Participants are typically those who have basic knowledge of Industrial Motion Control applications.

Course Duration

Introduction to Sizing and Applying Motion with PLC/Motion Demonstration, US9178 - 2 days

PLCopen Motion Control Library for MicroFlex e150 / ACSM1 Servo Drives

This course is designed to introduce the ABB PS552-MC Motion Control and Generic Drive Interface (GDI) libraries with the ABB AC500 Programmable Logic Controllers (PLC). The goal of this course is that participants use PLCopen Motion libraries and ABB Automation Builder software to control and monitor ABB MicroFlex e150 and ACSM1 Servo Drives. Participants will also use Generic Drive Interface (GDI) libraries to control the MicroFlex e150 Drive, via internet connection, with a Web Visualization created in CODESYS. Within Automation Builder Software, the ABB Mint Workbench Software and DriveStudio Software are used for setup and tuning the Servo Drives for these class exercises.

Audience

Technical and sales professionals and authorized channel partners, who work with ABB AC500 PLC and MicroFlex / ACSM1drives. Participants are typically those who have basic knowledge of Industrial Motion Control applications, such as OEM's, System Integrators, Distributors and Application Engineers.

Course Duration

PLCopen Motion Control Library for MicroFlex e150 / ACSM1 Servo Drives, US9224 – 2.5 days

MINT™ Commissioning e100/e150 with PLC/Motion Lab

This course is designed to offer hands on labs to use the MINT WorkBench software tool to commission and tune the NextMove e100 Motion Controllers and MicroFlex e100 Servo Drives. The class includes a demonstration of ABB's AC500 PLC performing motion control using the MicroFlex e150 Servo drive via Modbus TCP/IP and the Generic Drive Interface. The goal of this course is to educate students in the MINT motion capabilities, application solutions, and tools available to apply Motion products.

Audience

Technical and sales professionals and authorized channel partners who work with ABB Motion Control Products and Rotary Servo motors. Participants are typically those who have basic knowledge of Industrial Motion Control applications.

Course Duration

MINT™ Commissioning e100 and e150 with PLC/Motion Lab, US9179 - 2.5 days

ACSM1 Servo Drives Commissioning with PLC Motion Demo

This course is designed to develop participant knowledge and skill with the ACSM1 Servo Drive and DriveStudio commissioning and maintenance software tool. There will also be an introduction to DriveSPC (Solution Program Composer) software. The goal of this program is to gain proficiency with basic start-up, commissioning, tuning, control, and diagnostics of the ACSM1 Servo Drive. Participants will adjust and operate the ACSM1 Servo Drive with motion control applications. They will also customize the ACSM1 Servo Drive using Solution Programming basics and the Function Block library. Additionally, participants will observe a demonstration of controlling the ACSM1 Servo Drive by using an AC500 PLC incorporating the PLCopen Motion Control Library.

Audience

Technical and sales professionals and authorized channel partners who work with ABB ACSM1 Servo drives. Participants are typically those who have basic knowledge of Industrial Motion Control applications, such as OEM's, System Integrators, Distributors and Application Engineers.

Course Duration

ACSM1 Servo Drives Commissioning with PLC Motion Demo, US9194 – 3.5 days

Creating a training account and training enrollment

1. Go to ABB.com (http://www.abb.com)
2. Click on the "lock" symbol located on left hand margin.
3. If you already have an ABB account, click on "Go to My ABB".
4. If you do not have a training account, click on the "Sign up" button.

Send questions to: drivestraining@us.abb.com

AC Motion Control Drives
Product training

Introduction to Motion - E-learning modules online
A program and collection of e-learning courses covering our ABB Motion Drives is on our Training site and made available to the US.

Program
Technical and sales professionals and authorized channel partners who work with ABB Motion Control Products and Rotary Servo motors. Participants are typically those who have basic knowledge of Industrial Motion Control applications.

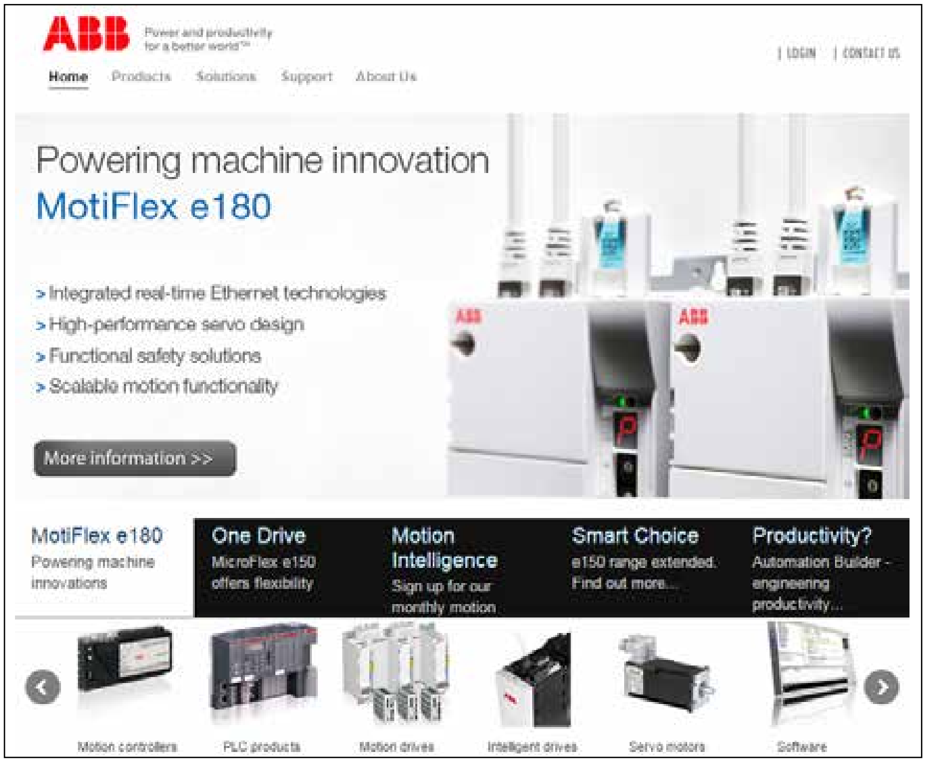
US9221 Introduction to Motion
Includes the following courses:

G1941e Overview of Servo Systems, Internet course - EN - 1
G1942e Overview of Servo Motors, Internet course - EN -1
G1943e Analogue Servo Products, Internet course - EN- 1
G1944e Mint WorkBench, Internet course - EN- 1
G1945e Overview of e100 Products, Internet course - EN-1
G1946e EPL Network Configuration, Internet course - EN-1
G1947e Servo Drive Commissioning, Internet course - EN-1
G1948e Overview of e150 Products, Internet course - EN-1
G1949e Motion Sales Guides, Internet course - EN - 1

These courses are all available online and cover a wealth of motion drives related topics.

AC Motion Control Drives
Website

www.abb.com/motion



AC Motion Control Drives
ACSM1



ACSM1 Frames A - G2

ACSM1 3 phase 230 V AC “M” = motion positioning control variant (incl. speed/torque) “AM” = air cooled motion positioning control variant

- Versatile and high HP positioning drive: 0.75 to 355 kW (1 - 580A, 1 - 450 hp)
- Custom motion programming with DriveStudio/SPC software
- Winder, elevator, CAM and flying shear control variants
- Cold plate cooling or flange mounting variants
- Regen supply and filter modules with common DC - also used with wind turbines
- Removable memory unit
- Optional fieldbus, feedback and I/O expansion adapters
- Safe Torque Off (STO)

Typical motor power Fsw = 4 kHz			Types and frames		Fsw = 8 kHz		Fsw = 16 kHz		List price
P_N HP	I_{2N} A	I_{2max} A	Type code	Frame size	I_{2N} A	I_{2max} A	I_{2N} A	I_{2max} A	
0.5	3	5.3	ACSM1-04AM-02A5-4	A	2.5	5.3	2	5.3	$1,210
0.75	3.6	6.3	ACSM1-04AM-03A0-4	A	3	6.3	2.2	5.8	$1,400
1	4.8	8.4	ACSM1-04AM-04A0-4	A	4	8.4	2.4	5.8	$1,680
1.5	6	10.5	ACSM1-04AM-05A0-4	A	5	8.4	2.5	5.8	$1,800
2	8	14.7	ACSM1-04AM-07A0-4	A	5.5	11.3	3	7.5	$2,000
3	10.5	16.6	ACSM1-04AM-09A5-4	B	9.5	13.2	5	9	$2,330
3	14	21	ACSM1-04AM-012A-4	B	12	21	6	15.2	$2,610
5	18	28	ACSM1-04AM-016A-4	B	13	22	7.5	15.2	$2,950
7.5	27	42	ACSM1-04AM-024A-4	C	24	42	18	29	$3,510
10	35	54	ACSM1-04AM-031A-4	C	31	43	20	29	$4,200
15	44	70	ACSM1-04AM-040A-4	C	35	63	22	42	$5,200
15	50	81	ACSM1-04AM-046A-4	C	38	63	24	42	$6,100
20	65	105	ACSM1-04AM-060A-4	D	55	84	28	57	$7,300
25	80	130	ACSM1-04AM-073A-4	D	60	117	31	78	$8,900
30	93	150	ACSM1-04AM-090A-4	D	65	117	34	78	$10,800

NOTES:

I_{2N} Continuous rms output current. No overload capability at 40°C (104 °F)
With 230 V AC single phase supply output current and power is derated by 50%

I_{2max} Maximum output current. Available for 10 seconds at start, otherwise as long as allowed by drive temperature

P_N Typical motor nominal power in no-overload use based on I_{2N}. When C and D frame sizes are used without mains choke, motor nominal power should be derated by 50%

- For 1 phase 230 V AC, derate by 50%
- Frame sizes C and D can be used continuously without a mains choke at up to 50% of nominal shaft power. (i.e. at continuous nominal torque up to 50% of rated speed)
- To achieve the rated motor power given in the table, the rated current of the drive must be higher than or equal to the rated motor current
- The DriveSize dimensioning tool available from ABB is recommended for selecting the drive, motor, and gear combination for the required motion profile
- If full power out of C and D frames is required, an optional top and integral mounted compact DC choke is required when the customer RMS current (load) calculated from the duty cycle is required to be more than 50%. Without the DC choke, the I2 value for C and D frames is derated
- Set parameter 95.02 EXTERNAL CHOKE = YES
- DC chokes cannot be used with cold plate drives
- For C - D frames, a DC or AC Choke is required when the motor nominal power is more than 50% of P_N
- See ACSM1 feedback cables in BSM Motor Feedback Cable section

AC Motion Control Drives
ACSM1



ACSM1 Frames A - G2

ACSM1 3 phase 480 V AC "M" = motion positioning control variant (incl. speed/torque) "AM" = air cooled motion positioning control variant

- Versatile and high HP positioning drive: 0.75 to 355 kW (1 - 580A, 1 - 450 hp)
- Custom motion programming with DriveStudio/SPC software
- Winder, elevator, CAM and flying shear control variants
- Cold plate cooling or flange mounting variants
- Regen supply and filter modules with common DC - also used with wind turbines
- Removable memory unit
- Optional fieldbus, feedback and I/O expansion adapters
- Safe Torque Off (STO)

Typical motor power Fsw = 4 kHz			Types and frames		Fsw = 8 kHz		Fsw = 16 kHz		List price
P_N	I_{2N}	I_{2max}	Type code	Frame size	I_{2N}	I_{2max}	I_{2N}	I_{2max}	
HP	A	A			A	A	A	A	
1	2.5	5.3	ACSM1-04AM-02A5-4	A	2.1	5.3	1.7	5.3	$1,210
1.5	3	6.3	ACSM1-04AM-03A0-4	A	2.5	6.3	1.8	5.8	$1,400
2	4	8.4	ACSM1-04AM-04A0-4	A	3.3	8.4	2	5.8	$1,680
3	5	10.5	ACSM1-04AM-05A0-4	A	4.1	8.4	2.1	5.8	$1,800
3	6.6	14.7	ACSM1-04AM-07A0-4	A	4.5	11.3	2.5	7.5	$2,000
5	8.7	16.6	ACSM1-04AM-09A5-4	B	7.8	13.2	4.1	9	$2,330
7.5	11.6	21	ACSM1-04AM-012A-4	B	9.9	21	5	15.2	$2,610
10	14.9	28	ACSM1-04AM-016A-4	B	10.7	22	6.2	15.2	$2,950
15	22	42	ACSM1-04AM-024A-4	C	20	42	15	29	$3,510
20	29	54	ACSM1-04AM-031A-4	C	26	43	16.5	29	$4,200
25	36	70	ACSM1-04AM-040A-4	C	29	63	18	42	$5,200
30	41	81	ACSM1-04AM-046A-4	C	31	63	20	42	$6,100
40	53	105	ACSM1-04AM-060A-4	D	45	84	23	57	$7,300
50	66	130	ACSM1-04AM-073A-4	D	50	117	26	78	$8,900
60	77	150	ACSM1-04AM-090A-4	D	54	117	28	78	$10,800
75	96	165	ACSM1-04AM-110A-4	E	62	125	-	-	$15,200
100	118	202	ACSM1-04AM-135A-4	E	74	150	-	-	$17,100
125	153	282	ACSM1-04AM-175A-4	E	95	206	-	-	$19,500
150	184	326	ACSM1-04AM-210A-4	E	111	232	-	-	$22,700
250	350	500	ACSM1-04AM-390A-4+ +H381+P905	G1	-	-	-	-	$55,000
350	450	600	ACSM1-04AM-500A-4+ +H381+P905	G1	-	-	-	-	$67,000
450	530	774	ACSM1-04AM-580A-4+ +H381+P905	G2	-	-	-	-	$78,000
450	580	840	ACSM1-04AM-635A-4+ +H381+P905	G2	-	-	-	-	$85,000

NOTES:

I_{2N} Continuous rms output current. No overload capability at 40°C (104 °F) With 230 V AC single phase supply output current and power is derated by 50%

I_{2max} Maximum output current. Available for 10 seconds at start, otherwise as long as allowed by drive temperature

P_N Typical motor nominal power in no-overload use based on I_{2N}. When C and D frame sizes are used without mains choke, motor nominal power should be derated by 50%

- For 1 phase 230 V AC, derate by 50%
- Frame sizes C and D can be used continuously without a mains choke at up to 50% of nominal shaft power. (i.e. at continuous nominal torque up to 50% of rated speed)
- To achieve the rated motor power given in the table, the rated current of the drive must be higher than or equal to the rated motor current
- The DriveSize dimensioning tool available from ABB is recommended for selecting the drive, motor, and gear combination for the required motion profile
- If full power out of C and D frames is required, an optional top and integral mounted compact DC choke is required when the customer RMS current (load) calculated from the duty cycle is required to be more than 50%. Without the DC choke, the I2 value for C and D frames is derated
- Set parameter 95.02 EXTERNAL CHOKE = YES
- DC chokes cannot be used with cold plate drives
- There are no values for 8 kHz and 16 kHz for G1 and G2 frames
- For C - D Frames, a DC or AC choke is required when the motor nominal power is more than 50% of P_N
- Maximum switching frequency (fsw) is 8 kHz with frame size E and 4 KHz with frame size G1/G2
- Power cabling panel IP20 (+ H381): This allows the motor and supply cable connection to a busbar panel fixed to the cabinet and allows the removal of the inverter unit by just loosening the bolts connecting the inverter unit busbars from the panel busbars (to which the external cabling is bolted)
- Integrated Control Unit option (+ P905): The control unit comes readily mounted inside the inverter unit
- See ACSM1 feedback cables in BSM Motor Feedback Cable section

AC Motion Control Drives
ACSM1



ACSM1 cold plate module

ACSM1 3 phase 230 V AC
"- CS" = cold "flat" plate speed and torque control variant

Typical motor power Fsw = 4 kHz			Types and frames		Fsw = 8 kHz		Fsw = 16 kHz		List price
P_N	I_{2N}	I_{2max}	Type code	Frame size	I_{2N}	I_{2max}	I_{2N}	I_{2max}	
HP	A	A			A	A	A	A	
7.5	27	42	ACSM1-04CS-024A-4	C	24	42	18	29	$3,250
10	35	54	ACSM1-04CS-031A-4	C	31	43	20	29	$3,850
15	44	70	ACSM1-04CS-040A-4	C	35	63	22	42	$4,800
15	50	81	ACSM1-04CS-046A-4	C	38	63	24	42	$5,600
20	65	105	ACSM1-04CS-060A-4	D	55	84	28	57	$6,700
25	80	130	ACSM1-04CS-073A-4	D	60	117	31	78	$8,200
30	93	150	ACSM1-04CS-090A-4	D	65	117	34	78	$9,900

ACSM1 3 phase 480 V AC
"- CS" = cold "flat" plate speed and torque control variant

Typical motor power Fsw = 4 kHz			Types and frames		Fsw = 8 kHz		Fsw = 16 kHz		List price
P_N	I_{2N}	I_{2max}	Type code	Frame size	I_{2N}	I_{2max}	I_{2N}	I_{2max}	
HP	A	A			A	A	A	A	
15	22	42	ACSM1-04CS-024A-4	C	20	42	15	29	$3,250
20	29	54	ACSM1-04CS-031A-4	C	26	43	16.5	29	$3,850
25	36	70	ACSM1-04CS-040A-4	C	29	63	18	42	$4,800
30	41	81	ACSM1-04CS-046A-4	C	31	63	20	42	$5,600
40	53	105	ACSM1-04CS-060A-4	D	45	84	23	57	$6,700
50	66	130	ACSM1-04CS-073A-4	D	50	117	26	78	$8,200
60	77	150	ACSM1-04CS-090A-4	D	54	117	28	78	$9,900

NOTES:

I_{2N} Continuous rms output current. No overload capability at 40°C (104 °F). With 230 V AC single phase supply output current and power is derated by 50%

I_{2max} Maximum output current. Available for 10 seconds at start, otherwise as long as allowed by drive temperature

P_N Typical motor nominal power in no-overload use based on I_{2N}. When C and D frame sizes are used without mains choke, motor nominal power should be derated by 50%

- For 1 phase 230 V AC, derate by 50%
- Frame sizes C and D can be used continuously without a mains choke at up to 50% of nominal shaft power. (i.e. at continuous nominal torque up to 50% of rated speed)
- To achieve the rated motor power given in the table, the rated current of the drive must be higher than or equal to the rated motor current
- The DriveSize dimensioning tool available from ABB is recommended for selecting the drive, motor, and gear combination for the required motion profile
- If full power out of C and D frames is required, an optional top and integral mounted compact DC choke is required when the customer RMS current (load) calculated from the duty cycle is required to be more than 50%. Without the DC choke, the I2 value for C and D frames is derated
- Set parameter 95.02 EXTERNAL CHOKE = YES
- DC chokes cannot be used with cold plate drives
- See ACSM1 feedback cables in BSM Motor Feedback Cable section

AC Motion Control Drives
ACSM1



ACSM1 cold plate module

ACSM1 3 phase 230 V AC
"- CM" = cold "flat" plate motion positioning control variant

Typical motor power Fsw = 4 kHz			Types and frames		Fsw = 8 kHz		Fsw = 16 kHz		List price
P_N	I_{2N}	I_{2max}	Type code	Frame size	I_{2N}	I_{2max}	I_{2N}	I_{2max}	
HP	A	A			A	A	A	A	
7.5	27	42	ACSM1-04CM-024A-4	C	24	42	18	29	$3,900
10	35	54	ACSM1-04CM-031A-4	C	31	43	20	29	$4,650
15	44	70	ACSM1-04CM-040A-4	C	35	63	22	42	$5,700
15	50	81	ACSM1-04CM-046A-4	C	38	63	24	42	$6,700
20	65	105	ACSM1-04CM-060A-4	D	55	84	28	57	$8,100
25	80	130	ACSM1-04CM-073A-4	D	60	117	31	78	$9,850
30	93	150	ACSM1-04CM-090A-4	D	65	117	34	78	$11,800

ACSM1 3 phase 480 V AC
"- CM" = cold "flat" plate motion positioning control variant

Typical motor power Fsw = 4 kHz			Types and frames		Fsw = 8 kHz		Fsw = 16 kHz		List price
P_N	I_{2N}	I_{2max}	Type code	Frame size	I_{2N}	I_{2max}	I_{2N}	I_{2max}	
HP	A	A			A	A	A	A	
15	22	42	ACSM1-04CM-024A-4	C	20	42	15	29	$3,900
20	29	54	ACSM1-04CM-031A-4	C	26	43	16.5	29	$4,650
25	36	70	ACSM1-04CM-040A-4	C	29	63	18	42	$5,700
30	41	81	ACSM1-04CM-046A-4	C	31	63	20	42	$6,700
40	53	105	ACSM1-04CM-060A-4	D	45	84	23	57	$8,100
50	66	130	ACSM1-04CM-073A-4	D	50	117	26	78	$9,850
60	77	150	ACSM1-04CM-090A-4	D	54	117	28	78	$11,800

NOTES:

I_{2N} Continuous rms output current. No overload capability at 40 °C (104 °F)
With 230 V AC single phase supply output current and power is derated by 50%

I_{2max} Maximum output current. Available for 10 seconds at start, otherwise as long as allowed by drive temperature

P_N Typical motor nominal power in no-overload use based on I_{2N} .When C and D frame sizes are used without mains choke, motor nominal power should be derated by 50%

- For 1-phase 230 V AC, derate by 50%
- Frame sizes C and D can be used continuously without a mains choke at up to 50% of nominal shaft power. (i.e. at continuous nominal torque up to 50% of rated speed)
- To achieve the rated motor power given in the table, the rated current of the drive must be higher than or equal to the rated motor current
- The DriveSize dimensioning tool available from ABB is recommended for selecting the drive, motor, and gear combination for the required motion profile
- If full power out of C and D frames is required, an optional top and integral mounted compact DC choke is required when the customer RMS current (load) calculated from the duty cycle is required to be more than 50%. Without the DC choke, the I2 value for C and D frames is derated
- Set parameter 95.02 EXTERNAL CHOKE = YES
- DC chokes cannot be used with cold plate drives
- See ACSM1 feedback cables in BSM Motor Feedback Cable section

AC Motion Control Drives
ACSM1



ACSM1 air cooled module for
lift (elevator)

ACSM1 3 phase 230 V AC
"- AL" = air cooled lift (elevator) control variant

Typical motor power Fsw = 4 kHz			Types and frames		Fsw = 8 kHz		Fsw = 16 kHz		List price
P_N HP	I_{2N} A	I_{2max} A	Type code	Frame size	I_{2N} A	I_{2max} A	I_{2N} A	I_{2max} A	
0.5	3	5.3	ACSM1-04AL-02A5-4	A	2.5	5.3	2	5.3	$1,175
0.75	3.6	6.3	ACSM1-04AL-03A0-4	A	3	6.3	2.2	5.8	$1,375
1	4.8	8.4	ACSM1-04AL-04A0-4	A	4	8.4	2.4	5.8	$1,650
1.5	6	10.5	ACSM1-04AL-05A0-4	A	5	8.4	2.5	5.8	$1,750
2	8	14.7	ACSM1-04AL-07A0-4	A	5.5	11.3	3	7.5	$1,950
3	10.5	16.6	ACSM1-04AL-09A5-4	B	9.5	13.2	5	9	$2,250
3	14	21	ACSM1-04AL-012A-4	B	12	21	6	15.2	$2,550
5	18	28	ACSM1-04AL-016A-4	B	13	22	7.5	15.2	$2,900
7.5	27	42	ACSM1-04AL-024A-4	C	24	42	18	29	$3,450
10	35	54	ACSM1-04AL-031A-4	C	31	43	20	29	$4,200
15	44	70	ACSM1-04AL-040A-4	C	35	63	22	42	$5,300
15	50	81	ACSM1-04AL-046A-4	C	38	63	24	42	$6,300
20	65	105	ACSM1-04AL-060A-4	D	55	84	28	57	$7,600
25	80	130	ACSM1-04AL-073A-4	D	60	117	31	78	$9,400
30	93	150	ACSM1-04AL-090A-4	D	65	117	34	78	$11,500

ACSM1 3 phase 480 V AC
"- AL" = air cooled lift (elevator) control variant

Typical motor power Fsw = 4 kHz			Types and frames		Fsw = 8 kHz		Fsw = 16 kHz		List price
P_N HP	I_{2N} A	I_{2max} A	Type code	Frame size	I_{2N} A	I_{2max} A	I_{2N} A	I_{2max} A	
1	2.5	5.3	ACSM1-04AL-02A5-4	A	2.1	5.3	1.7	5.3	$1,175
1.5	3	6.3	ACSM1-04AL-03A0-4	A	2.5	6.3	1.8	5.8	$1,375
2	4	8.4	ACSM1-04AL-04A0-4	A	3.3	8.4	2	5.8	$1,650
3	5	10.5	ACSM1-04AL-05A0-4	A	4.1	8.4	2.1	5.8	$1,750
3	6.6	14.7	ACSM1-04AL-07A0-4	A	4.5	11.3	2.5	7.5	$1,950
5	8.7	16.6	ACSM1-04AL-09A5-4	B	7.8	13.2	4.1	9	$2,250
7.5	11.6	21	ACSM1-04AL-012A-4	B	9.9	21	5	15.2	$2,550
10	14.9	28	ACSM1-04AL-016A-4	B	10.7	22	6.2	15.2	$2,900
15	22	42	ACSM1-04AL-024A-4	C	20	42	15	29	$3,450
20	29	54	ACSM1-04AL-031A-4	C	26	43	16.5	29	$4,200
25	36	70	ACSM1-04AL-040A-4	C	29	63	18	42	$5,300
30	41	81	ACSM1-04AL-046A-4	C	31	63	20	42	$6,300
40	53	105	ACSM1-04AL-060A-4	D	45	84	23	57	$7,600
50	66	130	ACSM1-04AL-073A-4	D	50	117	26	78	$9,400
60	77	150	ACSM1-04AL-090A-4	D	54	117	28	78	$11,500
75	96	165	ACSM1-04AL-110A-4	E	62	125	-	-	$16,500
100	118	202	ACSM1-04AL-135A-4	E	74	150	-	-	$18,500
125	153	282	ACSM1-04AL-175A-4	E	95	206	-	-	$21,500
150	184	326	ACSM1-04AL-210A-4	E	111	232	-	-	$25,000

NOTES:

I_{2N} Continuous rms output current. No overload capability at 40°C (104 °F)
With 230 V AC single phase supply output current and power is derated by 50%

I_{2max} Maximum output current. Available for 10 seconds at start, otherwise as long as allowed by drive temperature

P_N Typical motor nominal power in no-overload use based on I_{2N} .When C and D frame sizes are used without mains choke, motor nominal power should be derated by 50%

- For 1-phase 230 V AC, derate by 50%
- Frame sizes C and D can be used continuously without a mains choke at up to 50% of nominal shaft power. (i.e. at continuous nominal torque up to 50% of rated speed)
- To achieve the rated motor power given in the table, the rated current of the drive must be higher than or equal to the rated motor current
- The DriveSize dimensioning tool available from ABB is recommended for selecting the drive, motor, and gear combination for the required motion profile
- If full power out of C and D frames is required, an optional top and integral mounted compact DC choke is required when the customer RMS current (load) calculated from the duty cycle is required to be more than 50%. Without the DC choke, the I2 value for C and D frames is derated
- Set parameter 95.02 EXTERNAL CHOKE = YES
- DC Chokes cannot be used with cold plate drives
- See ACSM1 feedback cables in BSM Motor Feedback Cable section

AC Motion Control Drives
ACSM1 options



JPMP-01 cabinet mount



ACS-CP-U control panel

ACSM1 options

Name	Description	Field kit code	List price
Control panel and cover			
Control panel only	Control panel alone, no holder or cable	ACS-CP-U	$260
Cabinet mount	Control panel holder (NO control panel) and a 10-foot CAT 5 cable . The assembly is to be mounted to the user's cabinet. Includes IP54 cover.	JPMP-01	$130
NEMA 4X cabinet panel mounting	Allows remote mounting of the ACS-CP-X operator panels on a larger NEMA 4X (IP66) enclosure or remote panel. The kit maintains NEMA 4X integrity of the mounting location. All necessary hardware and a mounting template are provided in addition to a 3m panel cable. When mounted, the operator is not removable from the front of the enclosure. The operator panel must be purchases separately.	ACS/H-CP-EXT-IP66	$63
Programming and maintenance tools			
DriveStudio	DriveStudio software 1.x (Win2000/XP/Vista/Win 7) and serial connection cable OPCA-02 is an easy-to-use 32-bit Windows application for commissioning and maintaining the ACSM1. Use approved serial to USB adapters from Technical Support.	order by description	$1,360
DriveSPC	DriveSPC software 1.x (Win2000/XP/Vista/Win 7), add-on for DriveStudio, software only	order by description	$745
DriveSPC Pro	DriveSPC Pro software 1.x (Win2000/XP/Vista/Win 7), add-on for DriveStudio, software only	order by description	$2,250
DriveCAM	DriveCAM 1.x (Win2000/XP/Vista), add-on sw for DriveStudio, software only Cam technology functions are enabled by the Solution Program Composer (SPC) DriveSPC Software	order by description	$1,500
CAM Profiler	CAM Profiler Application Program (+N6050) for CAM profile (DriveCAM 1.x is required for programming) includes (+N4050) CAM Technology library for CAM profiler Order with -#M motion drive variant (not a separate field installed option)	+ plus codes to drive type code	$470
Winder Application Program	Winder Application Program (+N3000 +N5000) - includes winder/inline technology library +N3000, and Winder Solution program plus code +N5000 Order with -#S speed drives (not motion) - (not a separate field installed option)	+ plus codes to drive type code	$475
Flying shear/saw	Flying shear/saw rotary knife program		Contact factory

AC Motion Control Drives
ACSM1 options



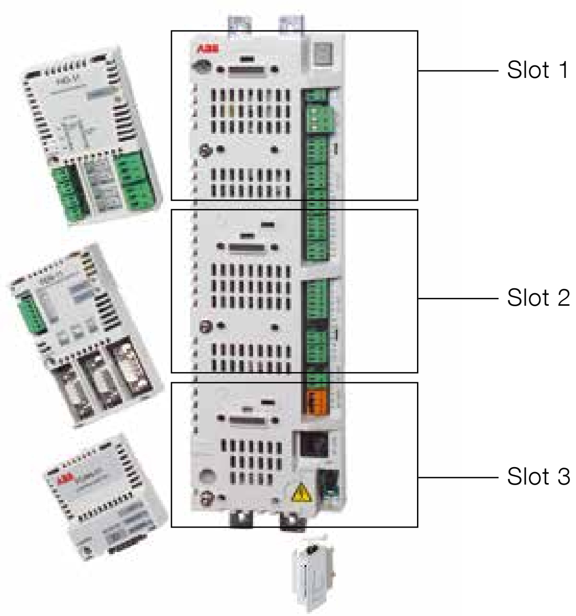
ACSM1 options

Name	Description	Field kit code	List price
Fieldbus communication adapters			
PROFIBUS-DP adapter	PROFIBUS DP is an open serial communication standard that enables data exchange between all kinds of automation components. The physical transmission medium of the bus is a twisted pair cable (according to the RS-485 standard). The maximum length of the bus cable is 100 to 1200 meters, depending on the selected transmission rate. Up to 31 stations can be connected to the same PROFIBUS system without the use of repeaters	FPBA-01-KIT	$290
DeviceNet adapter	The DeviceNet network uses a linear bus topology. Terminating resistors are required on each end of the trunk line. Drop lines as long as 6 meters (20 feet) each are permitted, allowing one or more nodes to be attached. DeviceNet allows branching structures only on drop lines	FDNA-01-KIT	$260
CANopen adapter	CANopen is a higher layer protocol based on the CAN (Control Area Network) serial bus system and the CAL (CAN Application Layer). CANopen assumes that the hardware of the connected device has a CAN transceiver and a CANopen controller as specified in ISO 11898. The CANopen communication profile, CiA Ds301, includes both cyclic and event driven communication, which makes it possible to reduce the bus load to minimum while still maintaining extremely short reaction times. High communication performance can be achieved at relatively low baud rates, thus reducing EMC problems and cable costs. CANopen device profiles define both direct access to drive parameter and time critical process data communication. The FCAN-01 module fulfills CiA (CAN in Automation) standard DSP 402 (drives and motion control)	FCAN-01-KIT	$325
Ethernet/IP, Modbus/TCP, PROFINET IO RT adapter	The FENA-11 v2.60 + Ethernet Adapter supports EtherNet/IP™, Modbus®/TCP, and PROFINET IO RT™ protocols. The FENA-11 module is compatible with Ethernet standards IEEE 802.3 and IEEE 802.3u, and supports the protocols and clients/masters listed in the table below **Protocol** / **Compatible client/master** Modbus/TCP* — All Modbus/TCP clients that support: - Modbus Application Protocol Specification v1.1b - Modbus Messaging on TCP/IP Implementation Guide v1.0b Ethernet/IP™ — All Ethernet/IP clients that support: - The CIP Networks Library, Volume 1, Common Industrial Protocol (CIP), Edition 3.0 May, 2006 - The CIP Networks Library, Volume 2, Ethernet Adaptation of CIP, Edition 1.2 May, 2006 - Recommended Functionality for Ethernet/IP Devices Version 1.2, Feb., 2006 PROFINET IO — All PROFINET IO masters that support: - GSDML file version 2.20 - PROFINET IO protocol according to IEC standard 61158 and 61784 * Besides Modbus/TCP, FENA-11 also supports Modbus over UDP	FENA-11-KIT	$400
Dual Port EtherNet Adapter Module	The FENA-21 is a Dual Port Accessible Three Port Switch. Ethernet standards support a variety of physical media (coaxial cable, twisted pair, fiber optics) and topologies (bus and star). The FENA-21 Ethernet adapter module supports twisted pair RJ-45 COTS cable as the physical media in a star topology. It supports the Modbus™/TCP, Ethernet IP™, and ProfiNet® IO RT protocols. Ideal for Daisy-chaining applications.	FENA-21-KIT	$465
Fieldbus communication adapters			
EtherCAT® adapter	The FECA-01 module supports EtherCAT network protocol. EtherCAT is a Real Time Ethernet technology which aims to maximize the use of the full duplex Ethernet bandwidth. It overcomes the overhead normally associated with Ethernet by employing on the fly processing hardware. An EtherCAT bus consists of a master system and up to 65535 slave devices, connected together with standard Ethernet cabling. The FECA-01 supports 10/100 Mbps transfer rate with network connections made with CAT 5 wiring and RJ-45 connectors. Designed for daisy chain configuration on an EtherCAT network. With the adapter module, the master may employ either the CANopen CiA 402 (device profile drives and motion control) profile or the ABB drives profile	FECA-01-KIT	$400
MACRO (Delta Tau adapter only)	MACRO stands for "Motion And Control Ring Optical". MACRO is a non-proprietary, digital high-speed bus interface developed by Delta Tau Data systems for connecting multi-axis motion controllers, amplifiers and distributed I/O on a fiber optic or twisted pair copper ring	FMAC-01-KIT	N/A
SERCOS II adapter	SERCOS interface is a real-time industrial fieldbus specified in the IEC 61491 standard. SERCOS I operates at 2 and 4 Mbit/s and SERCOS II operates at 2, 4, 8, and 16 Mbit/s. Both of these use plastic (1 mm) or glass (0.23 mm) optical fiber and F-SMA (IEC 60874-2) connectors as the transfer medium	FSEA-21-KIT	TBD
Modbus/RTU adapter	The FSCA-01 RS-485 Adapter Module supports the Modbus/RTU network protocol. Modbus/RTU is a variant of the Modbus family of simple, vendor neutral communication protocols intended for supervision and control of automation equipment. The Modbus/RTU implementation in the FSCA-01 RS-485 Adapter Module is done according to Modbus Application Protocol Specification v1.1b	FSCA-01-KIT	$350
Ethernet Powerlink adapter	Ethernet Powerlink (EPL) is a real-time networking technology for high performance automation applications. It is a future proof communications platform which utilizes all the strengths and benefits of standard Ethernet technologies but solves the issues of determinism. It integrates seamlessly with IT networks and utilizes standard Ethernet hardware (MAC's (Media Access Control), etc.) and standard IP (Internet Protocol) protocols such as TCP (Transmission Control Protocol) and UDP (User Datagram Protocol) (e.g. Internet radio/video protocol)	FEPL-02-KIT	TBD

AC Motion Control Drives
ACSM1 options

ACSM1 options

Name	Description	Field kit code	List price
Option modules			
Digital I/O extension	Digital I/O extension - has four 24V DC digital input/output's (can be configured either way, 50mA source, 500mA sink), and two form C (NO/NC) relay outputs (2 Amps at 240 V AC). The I/O is galvanically isolated as a group. Relay outputs have reinforced isolation .	FIO-01	$465
Analog I/O extension	Analog I/O extension - has three bi-polar current (-20 to +20 mA) or bi-polar voltage (-10 to +10 V) inputs and one uni-polar current (0[4] to 20 mA) output .It also has two 24V DC digital input/output's (can be configured either way, 50mA source, 50mA sink). Analog inputs are 16 bit resolution; outputs are 12 bit .Analog and digital I/O are galvanically isolated as a group, from each other and the power supply.	FIO-11	$465
TTL encoder interface	TTL incremental pulse encoder interface (with commutation signal and PTC thermistor support) - is capable of operating two differential encoders at 5.5 or 24 V DC with a maximum frequency of 500 kHz .It also can emulate a TTL differential encoder output up to a maximum frequency of 500 kHz.	FEN-01	$465
Absolute encoder interface	Absolute encoder interface (with PTC/KTY support) - has one absolute encoder input, one TTL encoder input, and one TTL encoder emulator output. The absolute encoder input supports a Sin/Cos incremental encoder, Endat 2.1, hiperface, or SSI with Sin/Cos signals at 5.5 or 8 V DC. The TTL encoder input can operate at 5.5 or 24 V DC. Both the encoder input and encoder emulator output are differential with a maximum frequency of 500 kHz.	FEN-11	$465
Resolver interface	Resolver interface (with PTC/KTY support) - has one resolver input, one TTL differential encoder input, and one TTL differential encoder emulator output .Resolver excitation amplitude and frequency are adjustable by software from 1 to 20 kHz and 4 to 12 Vrms. Transformation ratio of the resolver must be such that sine and cosine signals remains in the range of 2 to 7 Vrms. The TTL encoder input can operate at 5.5 or 24 V DC. Both the encoder input and encoder emulator output are differential with a maximum frequency of 500 kHz.	FEN-21	$465
HTL encoder interface	HTL incremental pulse encoder interface (with PTC/KTY support) - has one HTL encoder input and one TTL differential encoder emulator output. The HTL input supports differential push-pull, single-ended push-pull, open collector, and open emitter HTL encoders, up to 300 kHz at 15 or 24 V DC. The TTL differential encoder output has a maximum frequency of 500 kHz.	FEN-31	$465



Options	Data
Analog and digital extension	
FIO-01	4 x DI/O, 2 x RO
FIO-11	3 x AI, 1 x AO, 2 x DI/O
Feedback interface	
FEN-01	2 inputs (TTL incremental encoder), 1 output
FEN-11	2 inputs (SinCos absolute, TTL incremental encoder), 1 output
FEN-21	2 inputs (Resolver, TTL incremental encoder), 1 output
FEN-31	1 input (HTL incremental encoder), 1 output

Configuration rules:
Totally 3 option slots available (slot 1 topmost)

Slot 1 and slot 2:
- Analog and digital extension
- Feedback interface
- Two similar FEN inputs not possible simultaneously

Slot 3:
- Fieldbus communication adapter

AC Motion Control Drives
ACSM1 options



CHK-01 mains AC choke



DCL-01 compact mains DC choke



JBR-01 compact braking resistor



JFI-02 ultra-compact and slim, mains EMC/RFI filter

ACSM1 options

Name	Description	Field kit code	List price
Chokes, filters, and resistors			
Mains AC line choke (external to drive)	(0.75 - 1.5 kW, 1 - 2 HP), frame A	CHK-01	$175
	(2.2 - 3.0 kW, 3 HP), frame A	CHK-02	$250
	(4 - 5.5 kW, 5 - 7.5 HP), frame B	CHK-03	$320
	(7.5 kW, 10 HP), frame B	CHK-04	$335
	(11 - 15 kW, 15 - 20 HP), frame C	CHK-05	$560
	(18.5 - 22 kW, 25 - 30 HP), frame C	CHK-06	$700
	(37 - 45 kW, 50 - 60 HP), frame D	CHK-08	$1,050
Compact DC choke for ACSM1 (mounted on drive)	DC choke is required for C and D frames when the required RMS current (load) calculated from the duty cycle is more than 50% of the listed drive rating. Set parameter 95.02 EXTERNAL CHOKE = YES		
	(-024A, -031A), frame C	DCL-01	$565
	(-040A, -046A), frame C	DCL-02	$700
	(-060A), frame D	DCL-03	$975
	(-073A, -090A), frame D	DCL-04	$1,050
Ultra-compact and slim mains EMC/RFI filter	Frame A (mounted on drive)	JFI-02	$164
	Frame B (mounted on drive)	JFI-03	$257
	Frame C	JFI-05	$378
	Frame D	JFI-07	$606
Compact braking resistor for ACSM1	Frame A	JBR-01	$230
	(4 kW, 5 HP), frame B	JBR-03	$272
	(5.5 - 7.5 kW, 7.5 - 10 HP), frame B	JBR-04	$502
	(11 - 15 kW, 15 - 20 HP), frame C	JBR-05	$551
	(18.5 - 45 kW, 25 - 60 HP), frame C, D	JBR-06	$704
	Frame E	JBR-09	$1,634
Accessories			
ACSM1 E-frame flange kit	ACSM1 push-through E-Frame flange mounting kit, IP20 control/IP54 heatsink		$600

AC Motion Control Drives
ACSM1 supply modules with full regenerative capability



Regen filter module and regen supply module

Regen supply ACSM1-204MxR	List price	Regen supply module ACSM1-204xR		Regen filter module WFU-xx	
Size		Frame	Type	Frame	Type
ACSM1-204MAR-07A0-4	$3,850	A	07A0-4	0	WFU-01
ACSM1-204MAR-016A-4	$5,700	B	016A-4	0	WFU-02
ACSM1-204MAR-031A-4	$8,100	C	031A-4	1	WFU-11
ACSM1-204MAR-046A-4	$11,800	C	046A-4	2	WFU-21
ACSM1-204MAR-090A-4	$17,700	D	090A-4	2	WFU-22

NOTES: Order the ACSM1-204M#R-####- 4 and receive: [(1) - ACSM1-204AR-# regen supply module + (1) - WFU-## LCL filter module]

Regenerative supply module type	ACSM1-204xR-	07A0-4	016A-4	031A-4	O46A-4	090A-4
Regenerative supply module, frame size		A	B	C	C	D
Regenerative filter module		WFU-01	WFU-02	WFU-11	WFU-21	WFU-22
Input connection (AC)						
Supply voltage	U_2 (V AC)	3 phase 380 to 480 V AC +10/-15%				
Rated supply power at 400 V AC	S_N (kVA)	5.5	12.5	24	34	64
Rated supply current at 400 V AC	I_2 (A)	8	18	35	50	93
Rated supply current at 480/500 V AC	I_2 (A)	6.7	15	29	41	77
Frequency	f_2 (Hz)	50 to 60 Hz +/-5%				
Output connection (DC)						
DC voltage	U_{DC} (V DC)	548 to 721 V DC ±10% ($U_{DC} \geq 1,442 \times U_2$)				
Rated power (DC)	P_{DC} (kW)	5.3	12	23	33	61
Rated power (DC)	P_{DC} (hp)	7	16	30	44	81
Rated DC current (U_2 = 400 V AC, U_{DC} = 577 V DC)	I_{DC} (A)	9	21	40	58	107
Rated DC current (U_2 = 480 V AC, U_{DC} = 692 V DC)	I_{DC} (A)	7.6	17	34	47	88
Braking resistor connection						
Braking chopper	As standard in all types					
Braking resistor	External resistor connected to supply module					
Dimensions and weights						
Regenerative supply module	H x W x D (mm)	364 x 90 x 146	380 x 100 x 223	467 x 165 x 225		467 x 220 x 225
	Weight (kg)	3	5	10		17
Regenerative filter module	H x W x D (mm)	315 x 213 x 218		386 x 288 x 272	406 x 318 x 299	
	Weight (kg)	11	14	35	45	51

NOTES: Power ratings apply to the line voltage range from 400 to 480 V AC.
Regenerative supply modules dimensions are without options.

AC Motion Control Drives
ACSM1 supply modules with full regenerative capability

ACSM1 Regen Functions and Features

- Regen supply extends the ACSM1 offering for single and multidrive configurations
- Supply alternative for ACSM1-04 drives
- Full regenerative capacity (100 % rated power)
- Line side power factor controlled to [1]
- Clean power with ultra-low harmonic content (THD < 5%)
- Integrated EMC to meet category C2 with 50...150 m total motor cable length
- Immunity to supply voltage due to controlled DC voltage
- Connect and run. Started automatically, when supply connected
- No need for large braking resistors with continuous braking power
- Includes support for higher power parallel connection of Frame D ACSM1 Regen Supplies
- Applications include:
  - High continuous braking power and braking resistors not feasible
  - Multidrive systems with common DC
  - Single drive applications
  - Converting lines (incl. unwinders)
  - Automatic warehouses
  - Elevator Lift (“green update” or complete package)
  - Supply connection (AC/DC) for low power generation (Wind and Water power)
- Control modes:
  - DC voltage control – Regen supply can adjust the DC voltage to a higher level. Provides constant DC voltage for motor inverters, when supply voltage is not stable.
  - Power control
- Control features:
  - Reactive power control
  - Switching frequency reference
  - Braking chopper
  - Parallel connection
  - Synchronization
  - Protections

The ABB ACSM1-204 Regen

The ACSM1-204 Regen Supply module converts three-phase AC voltage and power to a DC voltage and power to supply Drive modules via a DC link.

The ACSM1-204 Regen Supply module can be used in single drive and multidrive configurations.

The Regen Filter module on the supply side keeps the line side harmonics at a very low level. The Regen Filter module also includes EMC filtering.

The ACSM1-204 Regen supply module can feed power via common DC bus to Drive modules, or braking power can be fed back to the supply network.

By default, the supply module controls the DC voltage 2% above the peak value of the line-to-line voltage.

The DC voltage reference can be set also higher by a parameter.
Two line currents and the DC voltage are measured and used for the control.

Always use the Regen Filter module (WFU-xx) with the Regen Supply module (ACSM1-204).

The ACSM1-204MAR Kit includes: (1) – WFU-xx and (1) – ACSM1-204AR.

The ACSM1-204 either has an Air-cooled heatsink (-204MAR), or is to be installed on a Cold plate cooling element (-204MCR).

The ACSM1-204 is available in several frame sizes (A, B, C, D) depending on output power. All frame sizes use the same control unit (type JCU).

The installation must be equipped with a main contactor – see diagram and User Manual.

AC Motion Control Drives
ACSM1 supply modules with full regenerative capability

Compatibility

ACSM1-04 Drives

The ACSM1-204 Regen Supply module, with an WFU-xx Regen Filter module of appropriate size, is compatible with ACSM1-04 Drives (frame sizes A, B, C, D).

Other Drive types

The ACSM1-204 Regen Supply module and WFU-xx Regen Filter module do not include a charging device capable of providing the initial charging of the Drive or inverter modules connected to the DC bus. Depending on the Drive type, external charging may be required.

Consider the following if a drive type other than the ACSM1-04 is used:

- Check that all the devices that are connected to the DC bus fed by the ACSM1-204 Regen Supply modules can be charged through the DC bus without any external charging device.
- If not, charge the Drive externally before connecting it to the DC bus of the ACSM1-204 Regen Supply module.

Options for ACSM1 Regen Supply:

- Fieldbus Communication options:
  - PROFIBUS DP adapter, FPBA-01
  - CANOpen adapter, FCAN-01
  - Modbus RTU adapter, FSCA-01
  - Contact factory for other fieldbus communication options
- I/O options:
  - Analog I/O Extension, FIO-11
  - Digital I/O Extension, FIO-01

Programming and maintenance tools:

- DriveStudio SW and DriveSPC SW (compatible from version 1.4 onwards) can be used for the configuration and monitoring.
- Control panel ACS-CP-U is compatible with ACSM1 Regen Supply Modules
  Note: With default settings there is no need for any parameter changes to start-up the regen supply.

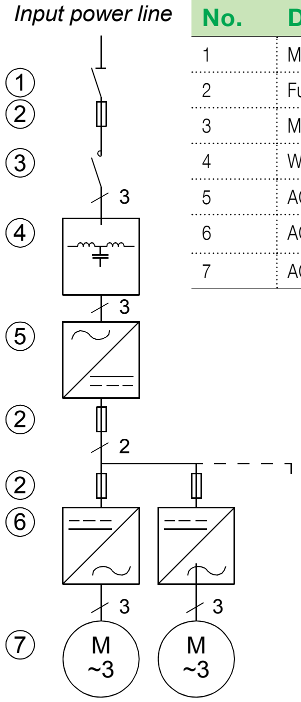
Sizing tool:

- MCSize (ACSM1 sizing) in DriveSize will support the ACSM1 Regen Supply selection.



ACSM1 regenerative supply connections

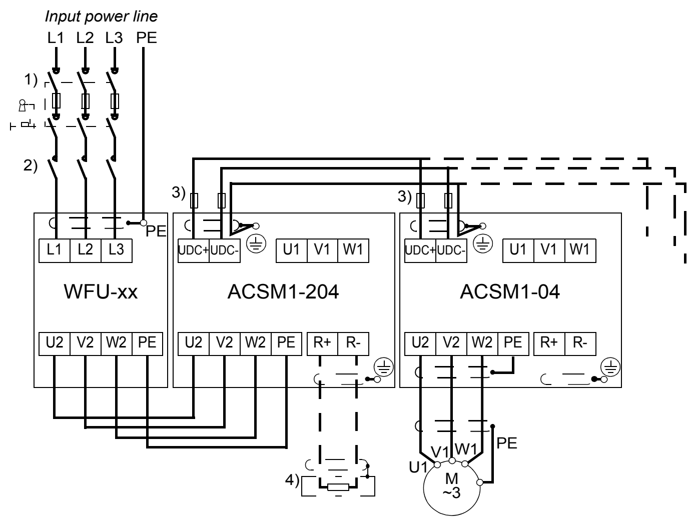
Input power line



No.	Description
1	Main disconnector
2	Fuses
3	Main contactor
4	WFU-xx regen filter module
5	ACSM1-204 regen supply module
6	ACSM1-04 drive module(s)
7	AC motor

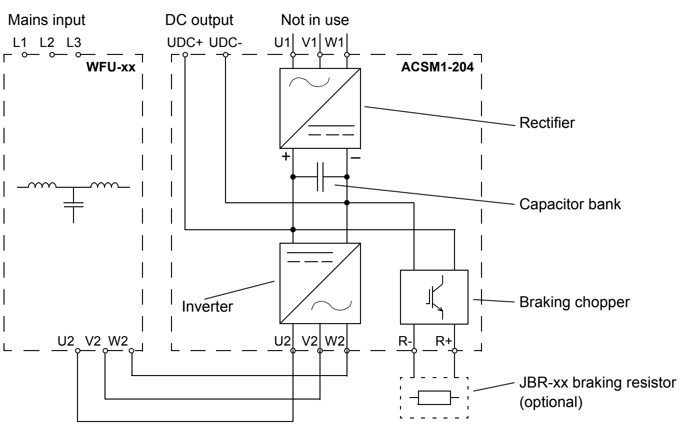
Connection diagram

No.	Description
1	Main disconnector and fuses (switch fuse)
2	Main contactor
3	DC fuses
4	Brake resistor (optional)



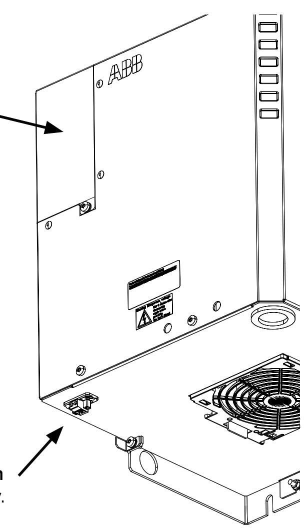
Control connections

– Cooling fan supply (24 VDC) to WFU
– Thermal protection wiring (WFU > ACSM1-204)
– WFU fan (on/off) control (ACSM1-204 > WFU)



Cabling

Grid connection
(L1, L2, L3 and FE)



Cooling fan power supply connection
No fan supply is included in the delivery. Use a supply that meets the following requirements.

Filter	Supply Voltage	Current demand, nominal
WFU-01	24V ± 5%	0.32A
WFU-02		
WFU-21		1.67A
WFU-22		

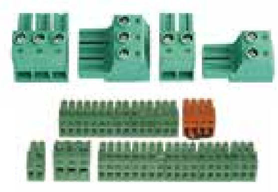
AC Motion Control Drives
ACSM1 demo kits and spare parts

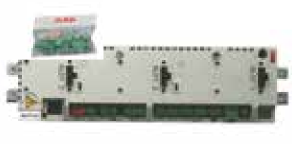




ACSM1 demo kits	List price
ACSM1 demo suitcase includes two ACSM1-04M units	$13,000
ACSM1 demo suitcase "lite" includes two control units (JCU-01)	$4,400

NOTES: Please contact Drives Services to validate correct P/N. Drive S/N is required for the correct part number.











ACSM1 spare parts To order, contact ABB Drive Services for proper application or instructions to access web-based matrix	Description	Part number
JPU-BX power connector kit	JPU-AX power connector kit JPU-BX power connector kit	68729521 68729564
JCU-01 plug connector kit Control plug-in connectors - Order extra connectors with every new drive	JCU-01 connector kit	68739845
JCU-01 control unit spare part kit – JCU-01 1 PCS – JCU-01 PLUG CONNE JCU-01 1 PCS – JCU REPLACEMENT - ACSM1-04	JCU-01 spare part kit	3AUA0000026955
JMU-01 with motion control software JMU-01 speed/torque control software Winder JMU JMU-01 memory modules are available as loose, optional items by type (speed/torque or motion) and by firmware version. **NOTE**: Specify speed/torque or motion & FW. The drive serial number is required for the correct firmware programming (e.g. speed/torque, motion, winder, etc.)	Preloaded with speed and torque control software Preloaded with winder control software Preloaded With motion control software Loaded with lift control software Loaded with regen control software 1 2 3 **ACSM1-M-MU-E1** 4 FW: UMFI1020/N2000 5 SP: Product type 6 TL: N/A 7 TE: N/A 8 S/N: 1071200064	3AUA0000017129 3AUA0000047924 3AUA0000014965 3AUA0000075221 3AUA0000070805
Cooling fan	Fan Fan Fan Fan Fan **NOTE:** Please contact Drive Services to validate correct P/N. Drive S/N is required for the correct part number.	68261988 68694949 68677076 42000479 3AUA0000019968
ACSM1 power unit (JPU) e.g. ACSM1-SPAS-012A-4 power unit (spare)	**NOTE:** Please contact Drive Services to validate correct P/N. Drive S/N is required for the correct part number.	

Software code		Other information	
1	Product series	4	Firmware version
2	Product type	5	Solution program
3	HW version	6	Technology library
		7	Technology extension
		8	Serial number

AC Motion Control Drives
ACSM1 type code sheet

Type code sheet
0,75 - 355 kW ACSM1 drive module

1...5 | A | C | S | M | 1 | **Product series**

7...11 | - | | | | | **Product type**

04AS - Air cooled module, speed and torque control program
04AM - Air cooled module, motion control program
04PS - Push through module, speed and torque control program (C-D frames only)
04PM - Push through module, motion control program (C-D frames only)
04CS - Cold plate module, speed and torque control program (C-D frames only)
04CM - Cold Plate module, motion control program (C-D frames only)

04XX = Module, IP20 (A-E frames)/IP00 (G frames, bookself installation), external control unit (JCU/G frames only), no control panel, no mains filter (A-D frames), no mains choke (A-D frames), braking chopper, boards with coating, Safe Torque Off, quick installation guide, latest firmware version, drive SP programming

12...16 | - | | | | | **Size**

Frame A	Frame B	Frame C	Frame D	Frame E	Frame G1	Frame G2
02A5	09A5	024A	060A	110A		580
03A0	012A	031A	073A	135A		635
04A0	016A	040A	090A	175A	390	
05A0		046A		210A	500	
07A0						

15...16 | - | | **Voltage rating** **4 = 200-500 V AC (A-D frames)/380-500 V AC (E-G2 frames)**

Specialties

☐	P904	Extended warranty	Extension of warranty to 30 months from delivery

AC Motion Control Drives
ACSM1 type code sheet

Type code sheet
0,75 - 110 kW, ACSM1 lift (elevator)

1...5	A	C	S	M	1	Product series
7...11	-	0	4		L	Product type

04AL - Air cooled module for lift application
04CL - Cold plate module for lift application (C-D frames only)
04PL - Push through module for lift application (C-D frames only)

04xL = Module, IP20 (UL Open type), no control panel, no mains filter (A-D frames), no mains choke (A-D frames), braking chopper, boards with coating, Safe Torque Off, quick guide manual, latest firmware version and drive SP programming.
NOTE: Lift control program (+N6000) and lift technology library (+N4000) required also.

12...16	-					Size

Frame A	Frame B	Frame C	Frame D	Frame E
02A5	09A5	024A	060A	110A
03A0	012A	031A	073A	135A
04A0	016A	040A	090A	175A
05A0		046A		210A
07A0				

15...16	-		Voltage rating 4 = **200-500 V AC (A-D frames)/380-500 V AC (E frame)**

Specialties

☐	P904	Extended warranty	Extension of warranty to 30 months from delivery

AC Motion Control Drives
ACSM1 type code sheet

Type code sheet
5.3 - 61 kW ACSM1 regen supply

1...5	A	C	S	M	1	Product series

7...11	-	2	0	4		R	Product type

(This is a "-204M_R" kit)

204MAR - Air cooled module, regenerative supply
204MCR - Cold plate module, regenerative supply (C-D frames only)

> **204Mxx** = Modular delivery of regen supply module (ACSM1-204xx) and regen filter module (WFU-xx).
> 204M types are used only for the ordering purposes. Type code items for size, voltage rating and options (+codes) are identical to corresponding regen supply module (ACSM1-204).

12...16	-					Size

Regen supply ACSM1-204MxR	Regen supply module ACSM1-204xR		Regen filter module WFU-xx	
Size	Frame	Type	Frame	Type
07A0-4	A	07A0-4	0	WFU-01
016A-4	B	016A-4	0	WFU-02
031A-4	C	031A-4	1	WFU-22
046A-4	C	046A-4	2	WFU-21
090A-4	D	090A-4	2	WFU-22

15...16	-		Voltage rating **4 = 380-480 V AC**

> **ACSM1-204xR (regen supply module):** IP20 (UL open type), no control panel, braking chopper, boards with coating, quick guide manual, latest firmware version, drive SP programming
>
> WFU-xx (regen filter module): IP20 (UL open type), EMC integrated, boards with coating, quick installation quide.
>
> **NOTE:** ACSM1-204xR and WFU-xx modules are delivered in separate packages

Specialties

☐	P904	Extended warranty	Extension of warranty to 30 months from delivery

AC Motion Control Drives
ACSM1 technical data

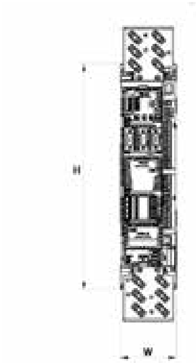
Main connections	
Supply voltage	3-phase 200 to 500 V AC +/-10% (A to D frames) 3-phase 400 to 500 V AC + 10 /-15% (E, G1 and G2 frames)
Frequency	50 to 60 Hz +/- 5%
Total harmonic distortion (THD)	With mains choke to meet limits acc. to EN 61000-3-2, IEC 61000-3-12, IEC 61000-3-4
DC connection	
DC voltage level	270 to 675 V DC +/-10% (A to D frames) 540 to 675 V DC +10% / -15% (E, G1 and G2 frames)
Charging circuit	Internal: A to D frames External: E, G1 and G2 frames
Common DC	See engineering manual
Motor connection	
Motor types	Asynchronous motors (standard induction, servo) and synchronous motors (servo, high torque)
Motor nominal frequency	0 to 500 Hz
Switching frequency (f_{sw})	1 to 16 kHz, 4 kHz as default. Output current derating above 4 kHz
Braking power connection	
Braking chopper	As standard in all types
Braking resistor	External resistor connected to drive

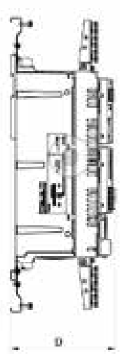
Operating conditions	
Degree of protection	IP20 acc. to EN 60529; open type acc. to UL 508.
Ambient temperature	-10 to +55°C, derating above 40°C
Installation altitude	0 to 4000 m, derating above 1000 m
Relative humidity	max. 95%
Climatic/environmental conditions	Class 3K3, 3C2 acc. to EN 60721-3-3. Oil mist, formation of ice, moisture condensation, water drops, water spray, water splashes and water jets are not permissible (EN 60204, part 1).
Vibration	Class 3M4 acc. to EN 60721-3-3
EMC (According to EN 61800-3)	With mains filter: Category C2
Functional safety	Safe Torque Off function (STO acc. EN 61800-5-2). IEC 61508: SIL 3 EN 954-1: Category 4 IEC 62061: SILCL 3 EN ISO 13849-1: PL e Certified by TÜV
Compliance	CE, UL, cUL, CSA, C-Tick, GOST R Certified per CSA B44.1/ASME A17.5 Elevator and Escalator Equipment Frame A - E

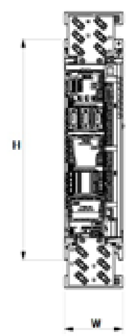
Frame size	A	B	C	D	E	G1	G2
Typical motor power							
230 V AC/P_N (kW)	0.37 to 1.5	2.2 to 4	5.5 to 11	15 to 22	-	-	-
400 V AC/P_N (kW)	0.75 to 3	4 to 7.5	11 to 22	30 to 45	55 to 110	200 to 250	315 to 355
500 V AC/P_N (kW)	0.75 to 3	4 to 7.5	11 to 22	30 to 45	55 to 110	200 to 250	315 to 355
230 V AC/P_N (HP)	0.5 to 2	3 to 5	7.5 to 15	20 to 30	-	-	-
480 V AC/P_N (HP)	1 to 3	5 to 10	15 to 30	40 to 60	75 to 150	230 to 350	450
Features							
Braking chopper	•	•	•	•	•	•	•
Braking resistor	o	o	o	o	o	o	o
Mains choke	o	o	o	o	•	•	•
Mains filter (EMC)/C2	o	o	o	o	•	-	-
Mains filter (EMC)/C3	o	o	-	-	-	•	•
Coated boards	•	•	•	•	•	•	•
Mounting and cooling							
Removable connectors control/power	•/ •		•/-				
Air cooling/ACSM1-04Ax	■	■	■	■	■	■	■
Side-by-side mounting	•	•	•	•	•	•	•
DIN rail mounting	•	•	-	-	-	-	-
Horizontal mounting	•	•	•	•	-	-	-
Push through/ACSM1-04Px	-	-	■	■	-	-	-
Cold plate/ACSM1-04Cx	-	-	■	■	-	-	-

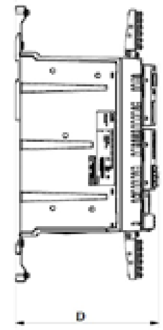
• Standard o Option,external ■ Product variant - Not available

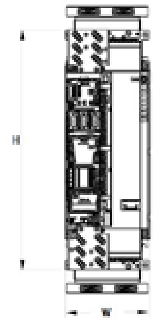
ACSM1 dimensions and weights

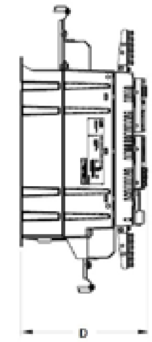

Frame A

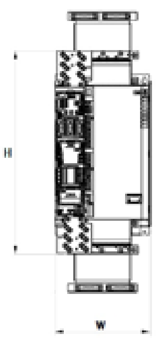

Frame A

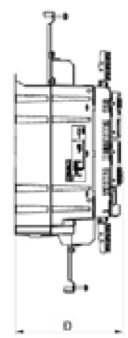

Frame B

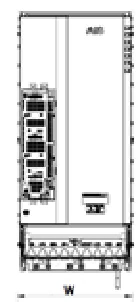

Frame B

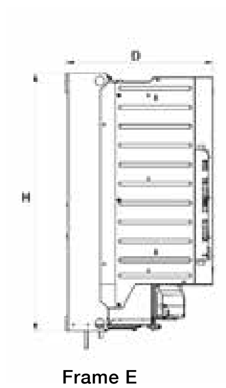

Frame C
(without cold plate)

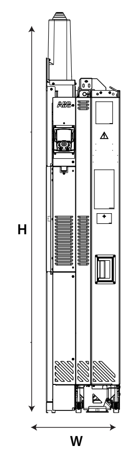

Frame C
(without cold plate)

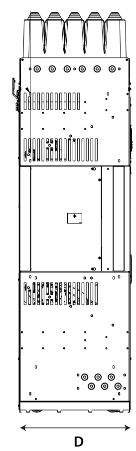

Frame D
(without cold plate)


Frame D
(without cold plate)

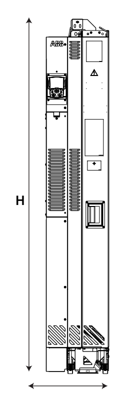

Frame E

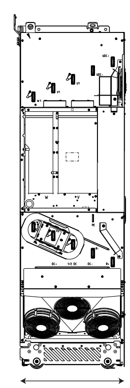

Frame E


Frame G1


Frame G1

Frame	Height		Depth**		Width****		Weight	
	in	mm	in	mm	in	mm	lb	kg
A	14.33	364	5.75	146	3.54	90	6.61	3
B	14.96	380	8.78	223	3.94	100	11.02	5
C	18.39	467	8.86/6.34***	225/161***	6.50	165	22.1/17.6***	10/8***
D	18.39	467	8.86/6.34***	225/161***	8.66	220	37.5/30.9***	17/14***
E	27.56	700	15.67	398	12.36	314	147.71	67
G1	57.56/ 61.42	1462/ 1560 ****	19.88/ 20.27	505/ 515 ****	12.00/ 12.95	305/ 329 ****	376.99/ 443.13	171/ 201 ****
G2	65.43/ 69.29	1662/ 1760 ****	19.88/ 20.27	505/ 515 ****	12.00/ 12.95	305/ 329 ****	458.56/ 524.70	208/ 238 ****

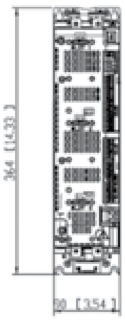

Frame G2

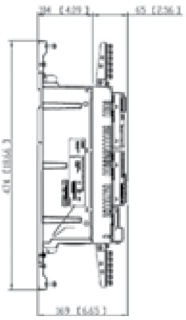

Frame G2

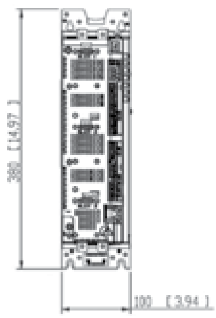
NOTES:
All dimensions and weights are without options
* Height is the maximum measure without clamping plates
** Depth will increase by 23 mm with options. Additionally, 50 mm should be reserved for feedback cabling if FEN-xx options are used
*** Depth or weight is for ACSM1 with the cold plate variant
**** Dimensions and weight for units with optional cabling panel

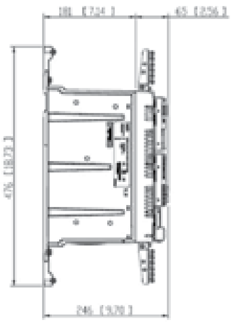
Frames G1 and G2 include:
- Power cabling panel IP20 (+H381)
  This allows the motor and supply cable connection to a busbar panel fixed to the cabinet and allows the removal of the inverter unit by just loosening the bolts connecting the inverter unit busbars from the panel busbars (to which the external cabling is bolted).
- Integrated Control Unit option (+P905)
  The control unit comes readily mounted inside the inverter unit.

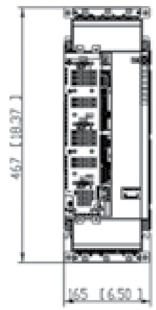
AC Motion Control Drives
ACSM1 supply modules with full regenerative capability

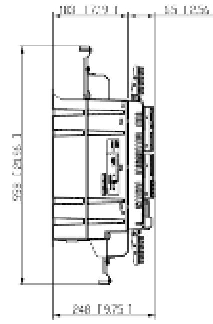

Frame A
regen supply

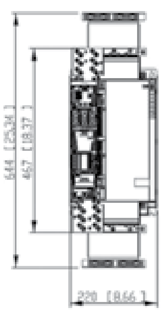

Frame A
regen supply

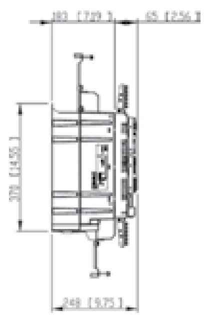

Frame B
regen supply

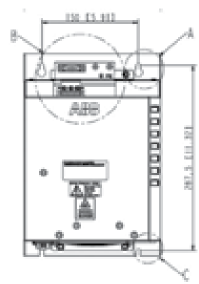

Frame B
regen supply

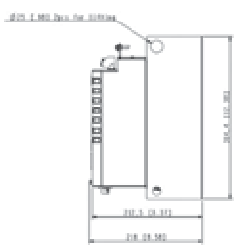

Frame C
regen supply

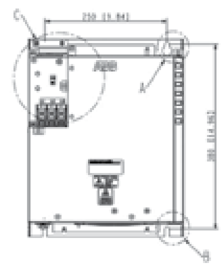

Frame C
regen supply

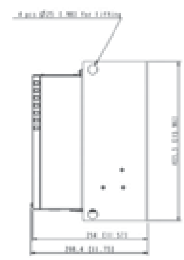

Frame D
regen supply


Frame D
regen supply


WFU-01, WFU-02
regen filter module


WFU-01, WFU-02
regen filter module


WFU-11, WFU-21, WFU-22
regen filter module


WFU-11, WFU-21, WFU-22
regen filter module

Regen supply module type	Regen supply module, frame size	Regen filter module	Heigh (without cable clamp plates)		Depth (without options installed on JCU)		Width		Weight	
			in	mm	in	mm	in	mm	lb	kg
Regen supply module										
07A0-4	A	WFU-01	14.33	364	5.75	146	3.54	90	6.6	3
016A-4	B	WFU-02	14.96	380	8.78	223	3.94	100	11.0	5
031A-4	C	WFU-11	18.39	467	8.86	225	6.50	165	22.0	10
046A-4	C	WFU-21	18.39	467	8.86	225	6.50	165	22.0	10
090A-4	D	WFU-22	18.39	467	8.86	225	8.66	220	37.5	17
Regen filter module										
07A0-4	A	WFU-01	12.40	315	8.58	218	8.39	213	24.3	11
016A-4	B	WFU-02	12.40	315	8.58	218	8.39	213	30.9	14
031A-4	C	WFU-11	15.20	386	10.71	272	11.34	288	77.2	35
046A-4	C	WFU-21	15.98	406	11.77	299	12.52	318	99.2	45
090A-4	D	WFU-22	15.98	406	11.77	299	12.52	318	112.4	51

NOTE: The wiring to the I/O options requires 50mm (2 in.) of additional depth).

AC Motion Control Drives
Product overview






Motion Drives	MicroFlex Analog	MicroFlex e100		MicroFlex e150		MotiFlex e180	
1-phase 115 VAC, ±10%	3...9 A	3...9 A	2.5…7.5 A	3...9 A	2.5…7.5 A	-	
1-phase 230 VAC, ±10%	3...9 A	3...9 A	2.5…7.5 A	3...9 A	2.5…7.5 A	-	
3-phase 230 VAC, ±10%	3...9 A	3...9 A	2.5…7.5 A	3...9 A	2.5…7.5 A	3…90 A (see Ratings/Overload Modes)	
3-phase 400 VAC, ±10%	-	-	-	-	-		
3-phase 480 VAC, ±10%	-	-	-	-	-		
DC Connection	-	-	-	-	-	Common DC operation: With external DC bus/cabling and fuses External DC supply: Contact factory	
Overload Capacity	200% - 3 secs	200% - 3 secs	300% - 3 secs	200% - 3 secs	300% - 3 secs	**Servo Motor** 200% - 3 secs 300% - 3 secs	**Induction Motor/ Servo Motor Modes** 110% - 60 secs 150% - 60 secs
						Overload modes can be adapted to dynamic (200/300%) or heavy duty (150/110%) modes to match the application or motor type	
Operating Ambient Rating	45°C (55°C with derate)	45°C (55°C with derate)		45°C (55°C with derate)		40°C (55°C with derate)	
Switching Frequency	8 kHz	8 kHz		8 kHz		4, 8 kHz	
Braking Resistor	External. Series of braking resistors availabale for dynamic operation.						
Cooling Fans	External FAN001-024 required for 6/9 A for UL and rms motor current > 4 A					Internal	
I/O Connections	1 x Enable 1 x DI 1 x STEP&DIRECTION (5V) 1 x AI 1 x Status DO	1 x Enable 1 x DI 2 x High speed DI 2 x DO Expand by CANopen		1 x 2 channel STO 8 x DI 2 x High speed DI 7 x DO 1 x AO 2 x AI Expanded with Modbus TCP		1 x 2 channel STO 6 x DI 2 x High speed DI 2 x AI 4 x DO 1 x AO 1 x Relay out 1 x Motor temperature input	Expanded with Modbus TCP or EtherCAT IO
Safe Torque Off Function	No	No		Yes. (SIL 3 PL e)		Yes. (SIL 3 PL e)	
Feedback Interfaces	1 x Incremental encoder or 1 x Resolver input	1 x Universal encoder input		1 x Universal encoder input (with ability to connect a digital encoder at the same time as an incremental encoder without halls or 2 x incremental encoders without halls) Resolver adapter available (OPT-MF-201) adding support for resolver feedback Resolver + incremental encoder		Feedback interface options: - FB-01: Incremental feedback (1 x ABZ+Halls, 1 x ABZ input, 1 x ABZ output) - FB-02: Digital feedback (1 x Clk/Data + Sin/Cos, 1 x ABZ input, 1 x ABZ output) - FB-03: Resolver feedback (1 x Resolver, 1 x ABZ input, 1 x ABZ output)	
Encoder Output	Encoder output	No		No		Encoder output on feedback interface	
Display Type	LED status indicator for error and notification	5 LED status indicators for error and communications notification		7 Segment LED display for diagnostics and 2 LEDs for EtherCAT state		7 Segment LED display for diagnostics and 2 LEDs for EtherCAT state	
Programming Interfaces	RS232 or RS422 version dependant	USB, Ethernet TCP/IP		USB, Ethernet TCP/IP		Ethernet	
Peripheral Interfaces (External IO, HMIs, etc)	RS232 or RS422 version dependant	Ethernet TCP/IP, EPL, CANopen, RS485 (2 wire), Modbus TCP, Modbus RTU		Ethernet TCP/IP, EtherCAT, RS485 (2 or 4 wire), Modbus TCP, Modbus RTU		Ethernet TCP/IP, Modbus TCP (server/ Client), Ethernet/IP, EtherCAT, Ethernet PowerLink (EPL)	
PC Software	Mint WorkBench						

AC Motion Control Drives
Product overview






Motion Drives	MicroFlex Analog	MicroFlex e100	MicroFlex e150	MotiFlex e180
MINT/SPC program support	No Mint programming	Single axis Mint lite programming	Single axis Mint programming with product variant selection	Single axis Mint Motion option (+N8020) needed to have Mint programming support
Control Source Options (Reference source)	Analog input, Step and Direction inputs (5Vdc)	Mint lite, EPL, Step and Direction inputs (12-24Vdc)	Mint program, EtherCAT, Analog input, Step and Direction inputs (12- 24Vdc)	Mint program, EtherCAT, Analog input, Step and Direction inputs (12-24Vdc)
Control Modes	Torque, velocity, Step and direction following	Torque, velocity, position	Torque, velocity, position	Torque, velocity, position Closed loop vector control, Open loop V/Hz
Plug in and factory installed options	RS232 or RS422 option	None	E152A0xEIOA Mint programmable or E152A0xEINA EtherCAT slave option	**Feedback interface options:** L517 - FB-01: Incremental feedback L518 - FB-02: Digital feedback L516 - FB-03: Resolver feedback **Functionality level options (with Memory unit):** - EtherCAT slave as standard +N8020 - Mint Single axis (Mint programming)
Accessories	FAN001-024 Fan tray FI0029A00 Footprint filter Selection of Regen resistors RGxx and EMC Filters FI00xxA0x	FAN001-024 Fan tray FI0029A00 Footprint filter Selection of Regen resistors RGJ and EMC Filters FI00xxA0x including footprint filter	OPT-MF-200 Encoder breakout OPT-MF-201 Resolver adapter FAN001-024 Fan tray Selection of Regen resistors RGJ and EMC Filters FI00xxA0x (including footprint filter)	EMC filters (JFI-xx) AC chokes (CHK-xx) DC chokes (DCL-xx) Braking resistors (JBR-xx)
Memory	Parameter table only	256 NVRAM locations, 64Kb Program, Parameter table and Device config file (where required)	256 NVRAM locations, 256Kb Program, Parameter table and Mint device configuration	256 NVRAM locations, 256Kb Program, Parameter table and Mint device configuration
Part Codes	FMHxAxxTR-xNx3W	MFE230AxxxBW	E152A0xEIxA	MFE180-04AN-xxxx-4+L5xx+N80xx +L5xx / Feedback interface +N80xx / Funtionality level
Conformance (Check manual for details)	CE, UL, cUL, RoHS, C-Tick (Australia only)	CE, UL, cUL, RoHS, C-Tick (Australia only)	CE, UL, cUL, TUV (for STO), RoHS, C-Tick (Australia only)	CE, UL, cUL, TUV (for STO), RoHS, C-Tick (Pending - Australia only)

AC Motion Control Drives
Product overview





Motion Drives	MotiFlex e100	ACSM1-04
1 phase 115 V AC, +/-10%	-	-
1 phase 230 V AC, +/-10%	-	Derate 3-phase 230 V AC by 50 %
3 phase 230 V AC, +/-10%	1,5...65 A	3...93 A
3 phase 400 V AC, +/-10%	1,5...65 A	3...635 A
3 phase 480 V AC, +/-10%	1,5...65 A	2,6...580 A
3 phase 500 V AC, +/-10%	-	2,6...580 A
DC connection	Common DC operation: with simple internal bus system External DC supply: contact factory	Common DC operation: with external DC bus system External DC supply: ACSM1-04 drive/regen supply (ACSM1-204)
Overload capacity	Servo motor Induction motor modes 200% - 3 secs (RATED) 110% - 60 secs 300% - 3 secs 150% - 60 secs MotiFlex overload modes can be adapted to dynamic (300%) heavy duty (150/110%) modes to match the application or motor type	Nominal current for continuous operation without overloadability. I2max (short time maximum current) values available with different fsw (4/8/18 kHz). Tables for 200% (10/60s) and 150 % (1/5min) TBD
Operating Ambient Rating	45°C (55°C with derate)	40°C (55°C with derate)
Switching frequency	4, 8, 16 kHz	1, 2, 3, 4, 5, 8, 16 kHz (4 kHz default)
Braking resistor	External. Series of braking resistors availabale for dynamic operation.	External. Series of braking resistors availabale for dynamic operation.
Cooling fans	2 x Internal	ACSM1-04Ax (air cooled): Internal ACSM1-04Cx (cold plate): External cooling element ACSM1-04Px (push through): Internal
I/O connections	1 x enable 1 x DI 2 x High speed DI 1 x AI Expanded with option cards or 2 x DO CANopen 1 x motor temperature input	2 x STO 6 x DI 3 x DIO (configurable) I/O extension options: 2 x AI (current or voltage) -FIO-01: 4 x DI/O, 2 x RO 1 x AO (current) -FIO-11: 3 x AI, 1 x AO, 2 x DI/O 1 x AO (voltage) (Feedback option FEN-xx 1 x thermistor input (PTC/KTY) also include fast latch inputs) 1 x relay out
Safe Torque Off function	No	Yes. (SIL 3 PL e)
Feedback interfaces	1 x Universal encoder input 1 x Step and Direction inputs (using digital inputs) Additional feedback interfaces can be added using Encoder, Resolver or Mint option cards	None as standard. Feedback interface options:- FEN-01: 2 x TTL input, TTL output- FEN-11: TTL input,Resolver input, TTL output- FEN-21: TTL input, Absolute (EnDat, HIPERFACE, SSI, Sin/Coc) input, TTL output- FEN-31: HTL input, TTL output, FEN-01: Supports Hall sensors. From these sensors, TTL+ input (+/- U, +/- V, +/- W) generates commutation pulse inputs that can be used in autophasing.
Encoder output	With option cards OPT-MF-011 and OPT-MF-013	None as standard. Can be added with an option card
Display type	5 LED status indicators for error and communications notification	7 segment LED display for diagnostics and external keypad available ACS-CP-U
Programming interfaces	USB, Ethernet TCP/IP	RS232, RS485 (with converter JPC-01), Profibus and Profinet parameter access via AC500 with option card
Peripheral interfaces (external IO, HMIs, etc)	Ethernet TCP/IP, EPL, CANopen, RS485 (2 wire), Modbus TCP, Modbus RTU, With option card: DeviceNet, Profibus, Ethernet IP, Profinet IO	RS232
PC software	Mint WorkBench v5.5	Drive Studio, DriveCAM, SPC (Solution Program Composer) and SPC Pro (for faster control loops)
Mint/SPC program support	Single axis Mint lite programming or Multi axis Mint programming with Mint option card	SPC function blocks and structured text for single axis control. CAM, Winder and Lift program options. No Mint programming
Control source options (reference source)	Mint lite, EPL, Analog input, Mint (with Mint Option card), Fieldbus option cards (basic motion)	SPC, Analog input, Encoder input, D2D link, Profibus, Profinet IO, CANopen, DeviceNet, Ethernet IP, Modbus TCP, Modbus RTU, EtherCAT, SERCOS II, Delta Tau MACRO, Ethernet Powerlink
Control modes	Torque, velocity, position, open loop V/Hz, closed loop AC vector	Torque, velocity, position, open loop DTC, closed loop
Plug in and factory fit options	2 x expansion slots compatible with: Fieldbus options: OPT-MF-001 analog IO card 4AI & 4AO OPT-MF-030 fieldbus carrier card with: OPT-MF-005 digital IO card 6DI & 4DO - OPT-FB-001 DeviceNet, OPT-MF-011 encoder option card - OPT-FB-002 Profibus DPV1 OPT-MF-013 resolver option card - OPT-FB-004 Ethernet IP OPT-MF-100 Mint dual axis option card - OPT-FB-005 Modbus TCP OPT-MF-101 Mint multi axis option card - OPT-FB-006 Profinet IO	2 x expansion slots compatible with (no duplicates): 1 x expansion slot compatible with: FIO-11 analog IO FDNA-01 DeviceNet adapter FIO-01 digital IO FPBA-01 Profibus DP adapter FEN-21 resolver interface FCAN-01 CANopen adapter FEN-01 incremental encoder interface FSCA-01 Modbus adapter FEN-11 absolute encoder interface FENA-11 EthernetIP, Modbus FEN-31 HTL encoder interface TCP, PROFINET IO adapter FECA-01 EtherCAT adapter
Accessories	Selection of EMC filters FI00xxA0x, regen resistors RGJxxx, line reactors LRAC0xx02, DC bus link kits OPT-MF-DC-x and motor cable management brackets OPT-CM-00x	Selection of resistors JBR-0x, AC Input chokes CHK-0x, regen supply modules (ACSM1-204), DC chokes DCL-0x, and EMC filters JFI-0x
Memory	256 NVRAM locations, 64Kb program, parameter table and device config file (where required)	Memory unit for parameter storage and SPC program
Part codes	MFE460AxxxBW	ACSM1-04xx-xxxx-4 (refer to catalog)
Conformance (check manuals for details)	CE, UL, cUL, CSA (pending), C-Tick (Australia only), RoHS	CE, UL, cUL, C-Tick, CSA, GOST R, Non-RoHS, CSA B44.1/ASME A17.5 Elevator and Escalator Equipment, Frame A - E

AC Motion Control Drives
Product overview
(For existing applications only)





Servo drives	FlexDriveII	Flex+DriveII
Supply	1 ph 97-125 V AC (max) FDH1... 1 ph 220-250 V AC (max) FDH2... 3 ph 220-250 V AC (max) FDH2A15.. 15A model 3 ph 180-528 V AC (max) FDH4... All 50/60 Hz AC	1 ph 97-125 V AC (max) FDH1... 1 ph 220-250 V AC (max) FDH2... 3 ph 220-250 V AC (max) FDH2A15.. 15A model 3 ph 180-528 V AC (max) FDH4... All 50/60 Hz AC
Current ratings	1 ph: 2.5, 5, 7.5 .3 ph 230 V AC: 15A 3 ph 460 V AC: 15, 20, 27.5A	1 ph: 2.5, 5, 7.5 .3 ph 230 V AC: 15A 3 ph 460 V AC: 15, 20, 27.5A
Overload capacity	200% for 1.25 secs	200% for 1.25 secs
Operating ambient rating	40 C	40 C
Switching frequency	8 kHz	8 kHz
Regen resistor	FDH1 and FDH2 2.5A models contain an internal 175Ω, 20W resistor 5A models contain an internal 90Ω, 40W resistor FDH4 2.5 and 5A models contain an internal 200Ω, 300W resistor All versions External connections available	FPH1 and FPH2 2.5A models contain an internal 175Ω, 20W resistor 5A models contain an internal 90Ω, 40W resistor FPH4 2.5 and 5A models contain an internal 200Ω, 300W resistor All versions External connections available
Cooling fans	Internal	Internal
I/O connections	1 x enable input 6 x DI 2 x high speed DI 1 x AI 3 x DO 1 x relay output	1 x enable input 6 x DI 2 x high speed DI 2 x AI 3 x DI 1 x relay output With AUX I/O option an additional 10 x DI 5 x DO
Safe Torque Off function	No	No
Feedback Interfaces	1 x feedback input either resolver, incremental encoder, EnDat or Hiperface 1 x master encoder input (incremental or step and direction) 1 x encoder output (incremental)	1 x feedback input either resolver, incremental encoder, EnDat or Hiperface 1 x master encoder input (incremental or step and direction) 1 x encoder output (incremental)
Encoder output	Encoder output	Encoder output
Display type	7 segment LED display for diagnostics	7 segment LED display for diagnostics
Programming interfaces	RS232 or RS485 dip switch selectable	RS232 or RS485 dip switch selectable
Peripheral interfaces	CANopen (option), RS232 or RS422 (dip switch selectable), DeviceNet (option), Profibus DP (option)	CANopen (option), RS232 or RS422 (dip switch selectable), DeviceNet (option), Profibus DP (option)
PC software	Mint WorkBench v5.5	Mint WorkBench v5.5
Mint program support	No Mint programming	No multi-tasking. Point to point moves only.
Control source options	Analog input, Step and direction inputs	Mint, analog input, step and direction inputs, PLC, CANopen (option), DeviceNet (option), Profibus DP (option)
Control modes	Torque, velocity, step and direction following	Torque, velocity, position
Factory fit options	Factory fit only CAN, DeviceNet or Profibus DP option, Resolver, Encoder, EnDat or Hiperface option, Internally or externally generated 24 V DC logic supply option.	Factory fit only CAN, CAN & Aux I/O, DeviceNet or Profibus DP option, Resolver, Encoder, EnDat or Hiperface option, Internally or externally generated 24 V DC logic supply option.
Accessories	OPT029-501 4 way encoder splitter board OPT029-502 8 way encoder splitter board Selection of regen resistors RGxx and EMC filters FI00xxA0x	OPT029-501 4 way encoder splitter board OPT029-502 8 way encoder splitter board Selection of regen resistors RGxx and EMC filters FI00xxA0x
Memory	Parameter table only	16Kb program and parameter table
Available in ABB colors (W)	No	No
Part numbers	FDHxAxxTx-xx2x	FPHxAxxTx-xx2x
Conformance	CE, UL, cUL, non-RoHS Unit marked cUL listed EMC - meets EN61800-3 C1 Emissions with external filter (30 m motor cable limit)	CE, UL, cUL, non-RoHS Unit marked cUL listed EMC - meets EN61800-3 C1 Emissions with external filter (30 m motor cable limit)

AC Motion Control drives
Product overview
(For existing applications only)



Servo drives	MintDrive[II]
Supply	1 ph 97-125 V AC (max) FDH1... 1 ph 220-250 V AC (max) FDH2... 3 ph 220-250 V AC (max) FDH2A15.. 15A model 3 ph 180-528 V AC (max) FDH4... All 50/60 Hz AC
Current ratings	1 ph: 2.5, 5, 7.5 .3 ph 230 V AC: 15A 3 ph 460 V AC: 15, 20, 27.5A
Overload capacity	200% for 1.25 secs
Operating ambient rating	40 C
Switching frequency	8 kHz
Regen resistor	MDH1 and MDH2 2.5A models contain an internal 175Ω, 20W resistor 5A models contain an internal 90Ω, 40W resistor MDH4 2.5 and 5A models contain an internal 200Ω, 300W resistor All versions External connections available
Cooling fans	Internal
I/O connections	1 x enable input 6 x DI 2 x high speed DI With AUX I/O option 2 x AI an additional 3 x DI 10 x DI 1 x relay output 5 x DO 2 x AO
Safe Torque Off function	No
Feedback interfaces	1 x feedback input either resolver, incremental encoder, EnDat or Hiperface 1 x master encoder input (incremental or step and direction) 1 x encoder output (incremental)
Encoder output	Encoder output
Display type	7 segment LED display for diagnostics
Programming interfaces	RS232 or RS485 dip switch selectable
Peripheral interfaces	CANopen or BaldorCAN (option and firmware dependant), RS232 or RS485 (dip switch selectable), DeviceNet (option), Profibus DP (option)
PC software	Mint WorkBench v5.5
Mint program support	Single axis Mint programming
Control source options	Mint, analog input, step and direction inputs, PLC, CANopen or BaldorCAN (option and firmware dependant), DeviceNet (option), Profibus DP (option)
Control modes	Torque, velocity, position
Factory fit options	Factory fit only CAN, CAN & Aux I/O, DeviceNet or Profibus DP option, Resolver, Encoder, EnDat or Hiperface option, Internally or externally generated 24 V DC logic supply option.
Accessories	OPT029-501 4 way encoder splitter board OPT029-502 8 way encoder splitter board Selection of Regen resistors RGxx and EMC Filters FI00xxA0x
Memory	1638 NVRAM locations, 64Kb Program and Parameter table
Available in ABB colours (W)	No
Part numbers	MDHxAxxTx-xx2x
Conformance	CE, UL, cUL, Non-RoHS Unit marked cUL Listed EMC - Meets EN61800-3 C1 Emissions with external filter (30m motor cable limit)

ABB DriveSize and MCSize Software Tool

DriveSize is ABB's product selection software. The MCSize plug-in is specifically for the determination of servo motors and selected drives for motion control systems.

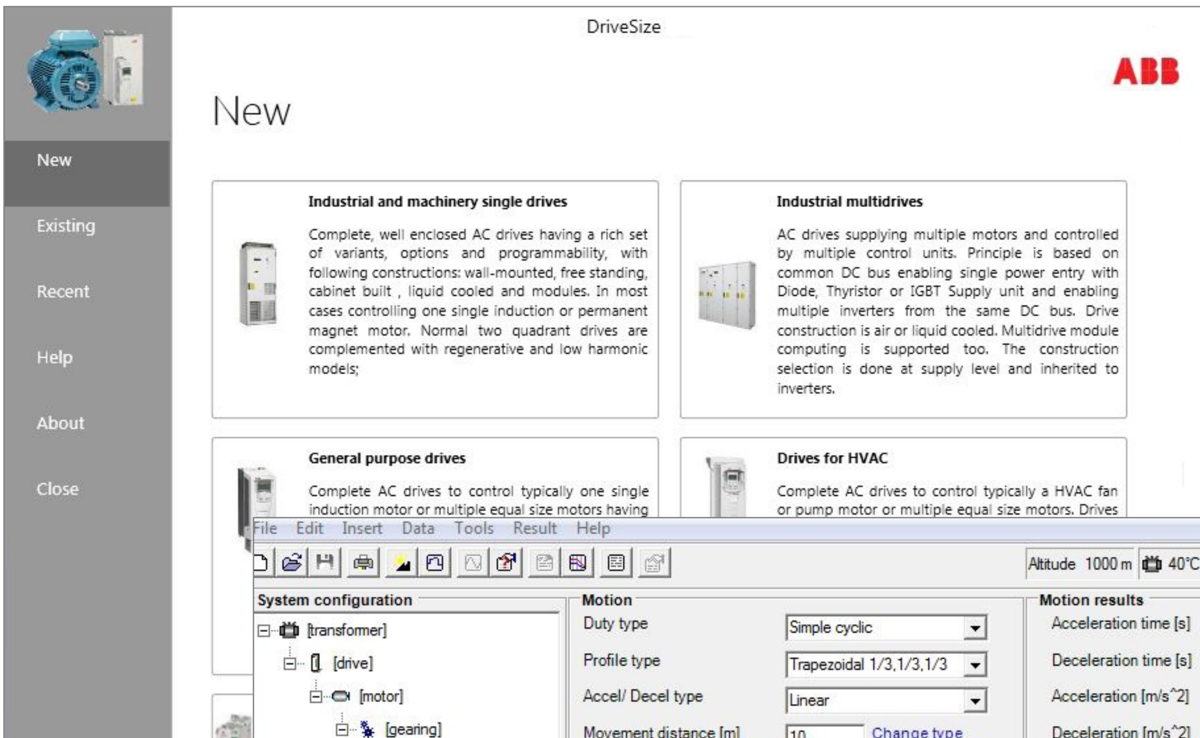
MC Size is available with a motor database, motor selection criteria and user selection information to make the process of choosing a servo motor and drive easier and more accurate.

Download DriveSize and MCSize from ABB's website:

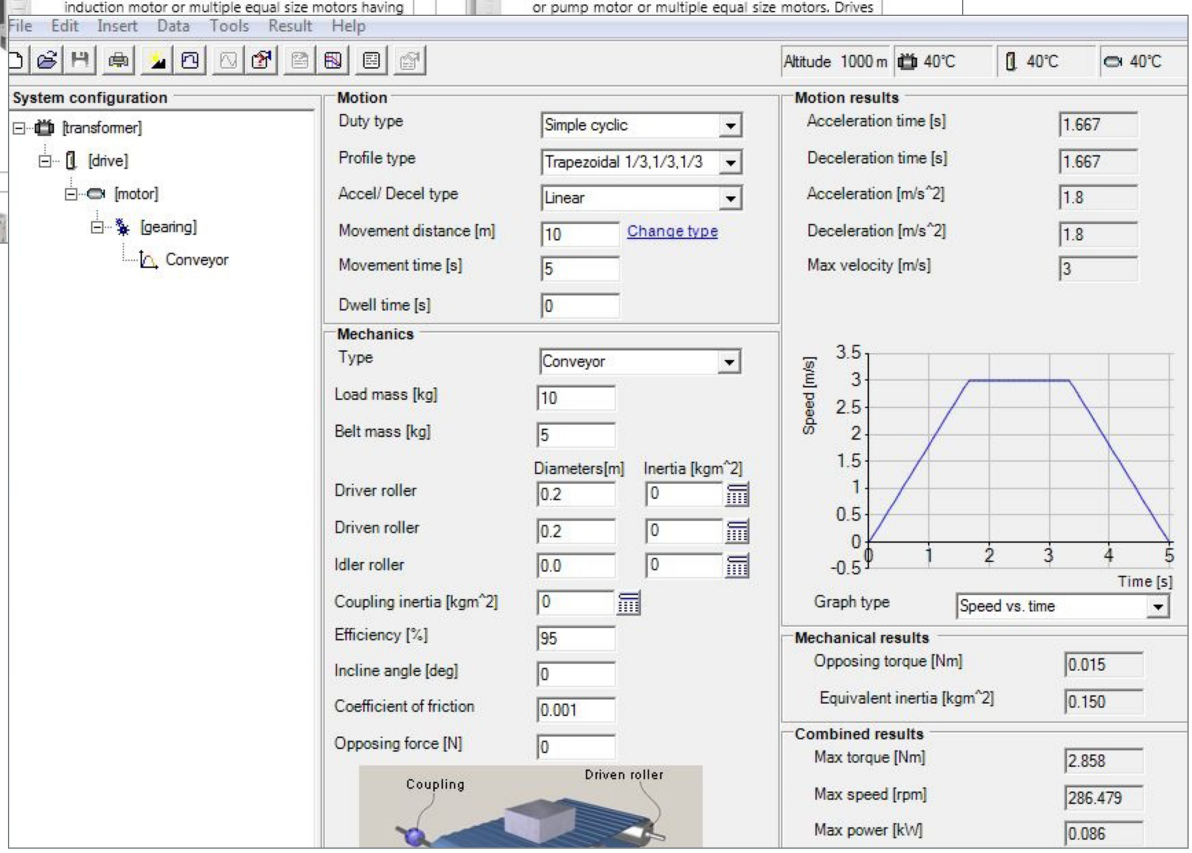
http://new.abb.com/drives/software-tools/drivesize

NOTES:

- MCSize does not contain product price information, but attempts to ascertain a low-cost solution by offering lower current motors. It is necessary to check the cost of alternative solutions to determine the best offering for specific customer requirements.
- MCSize does not select the feedback type or other motor options. Please ensure you identify the required options, including the feedback type, and modify the specified part numbers accordingly.



DriveSize



MCSize

Automation Solutions

ABB Motion Control and PLC Solution offering

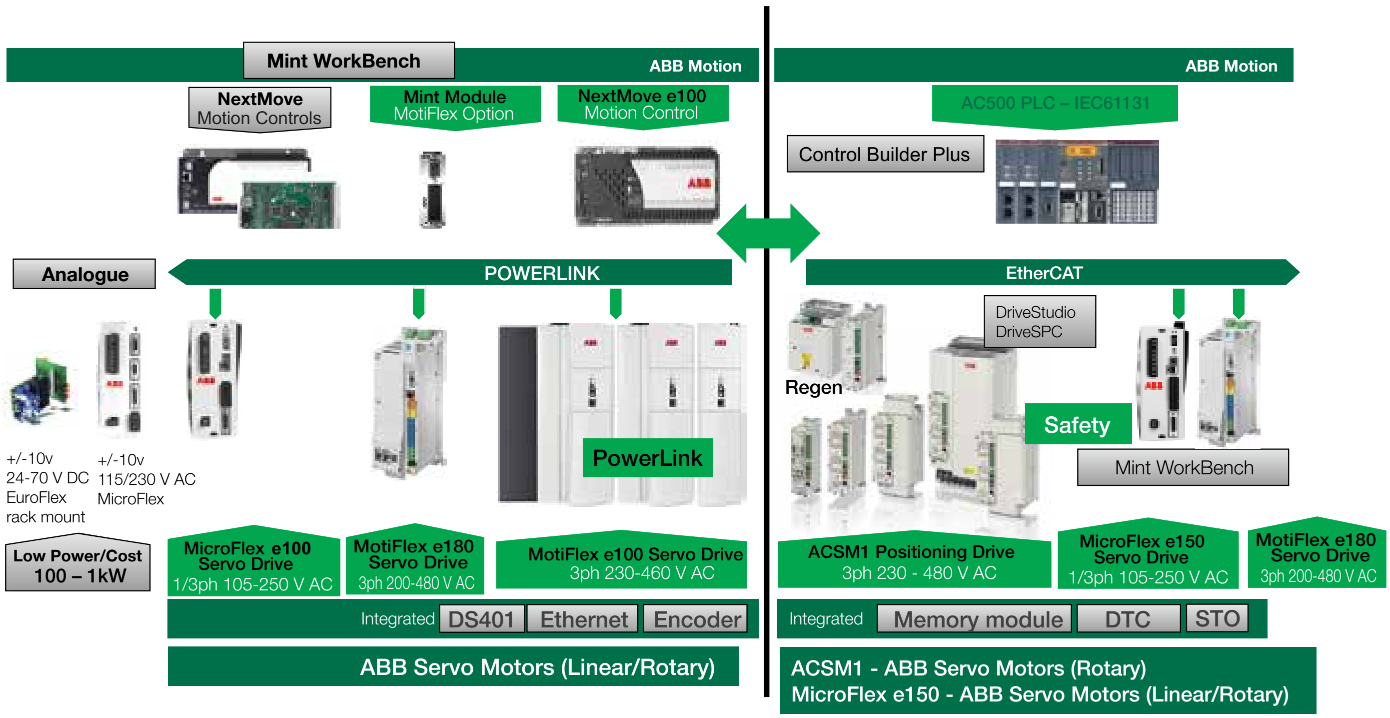
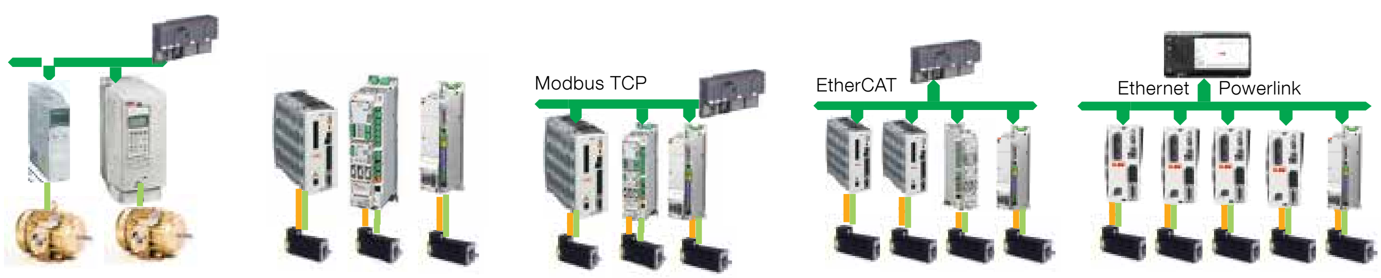


ABB Motion and PLC Control Solutions



PLC with AC drives

– PLC with various Drives

Compact single-axis

– MicroFlex e100/e150, MotiFlex e180 Drives or ACSM1 drive with motion variant

PLC based multi-axis non-coordinated

– AC500 eCo or AC500 PLC communicating Modbus/TCP to MicroFlex e100/e150, MotiFlex e180 Motion Control Drive family or ACSM1 Drive

PLC based multi-axis coordinated

– AC500 PLC with EtherCat talking to MicroFlex e150, ACSM1, or MotiFlex e180 Motion Control Drives

High performance Motion Controller based multi-axis coordinated

– NextMove e100 Motion Controller communicating via Ethernet Powerlink to e100, e180 Motion Control Drives

ABB strategic offering shows flexibility led by Ethernet technologies
Simple connectivity for customer

Automation Solutions

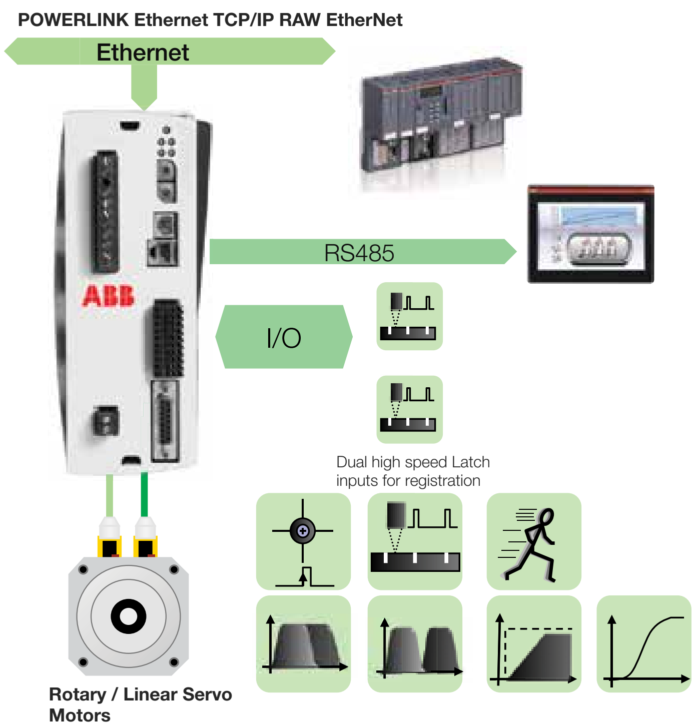
ABB Ethernet Motion Control products machine control solutions



- One software tool for simplified configuration and programming
- One point of access to configure the entire network.
- Intelligent programmable drives, optimized for Motion Control performance
- Plug-in Controller (Drive option) for 1-5 axes of control
- Motion Controller for 1-16 axes advanced motion
- Drives from 1kVA ~ 46kVA and 115/230 and 460 V AC

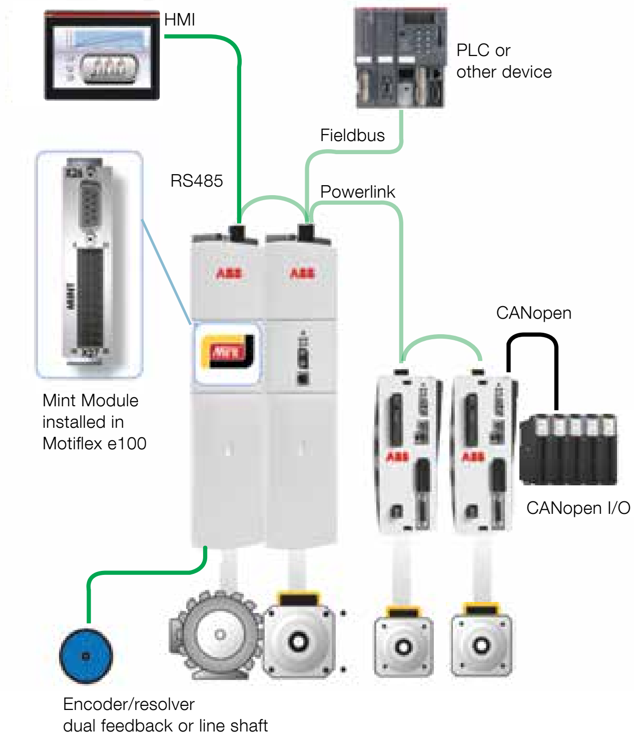
Automation Solutions

ABB e100 Drives programmable as standard Mint Lite motion programming



- Solution for intelligent/decentralized motion applications
- Indexing, change of target on the fly, registration, homing, etc.
- Multitasking and event handling
- Link to PLCs, industrial PCs via Ethernet or RS485 (2 wire operation) and fieldbus on MotiFlex
- HMI connection/Mint Terminal support
- PLC communications, e.g. Modbus
- CANopen DS401 I/O expansion

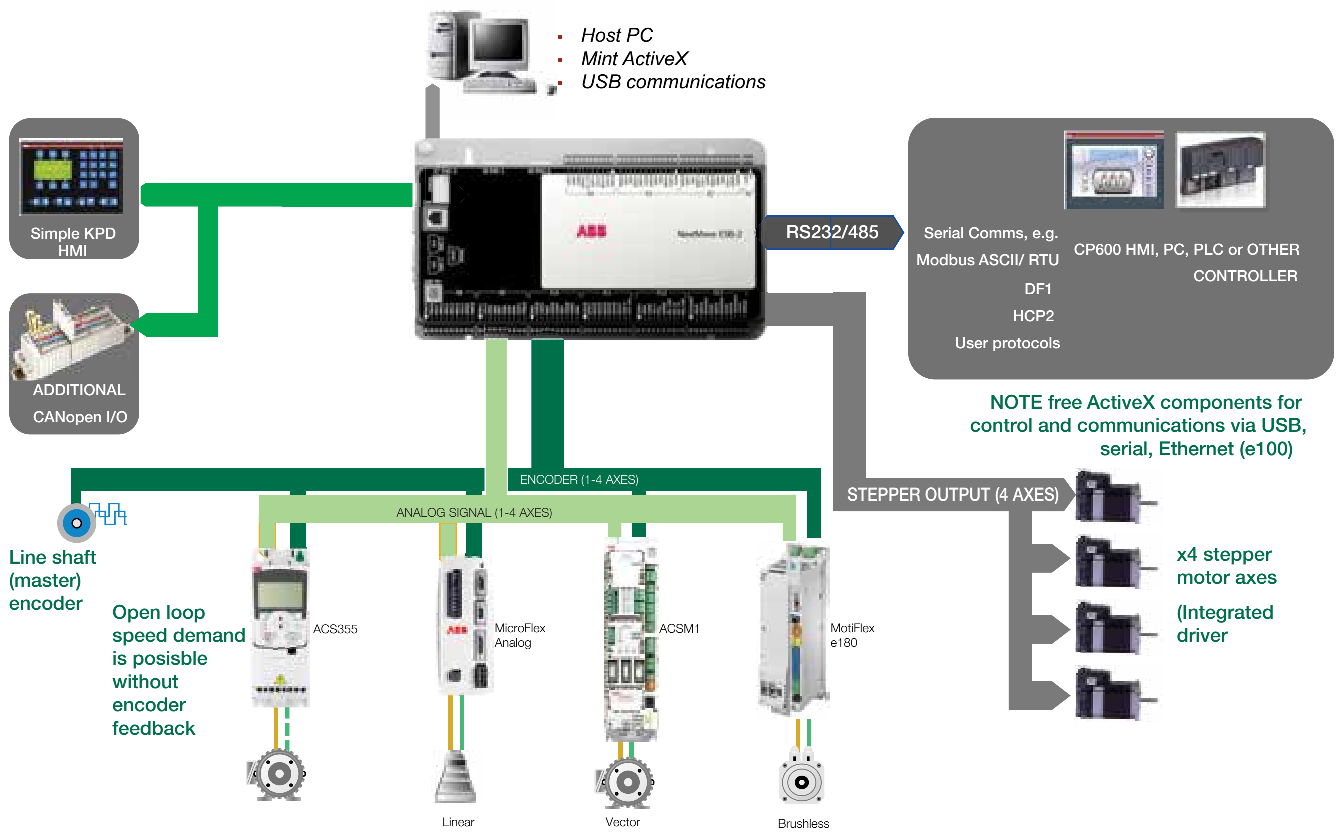
ABB example Mint Module System four axes, HMI, fieldbus gateway for PLC communications



- First MotiFlex hosts the Mint card (top slot)
- NODE ID set to 240 (EPL manager)
- HMI via RS485 or CAN
- Remote I/O on MicroFlex e100
- Mix of motor types can be supported
- Optional fieldbus gateway in second MotiFlex (requires top slot)

Automation Solutions

ABB NextMove ESB2 Motion Controller analog/stepper ABB ACSM1, ABB MicroFlex, ABB ACS355, ABB MotiFlex e180



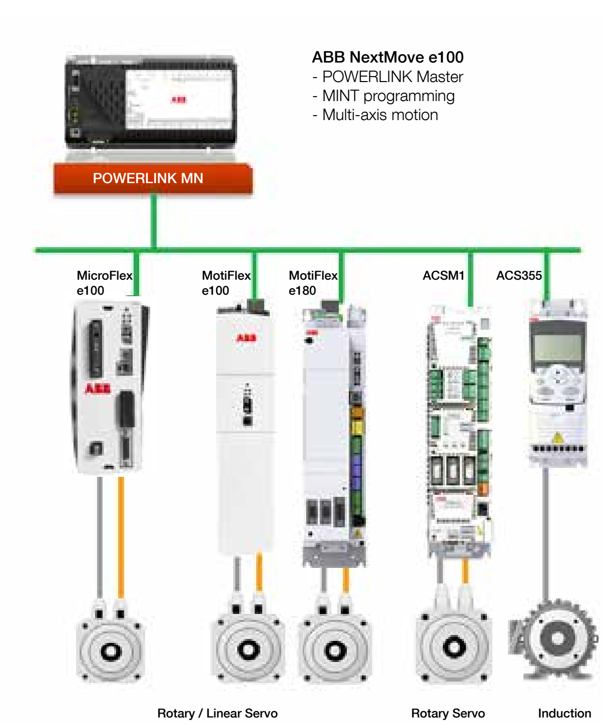
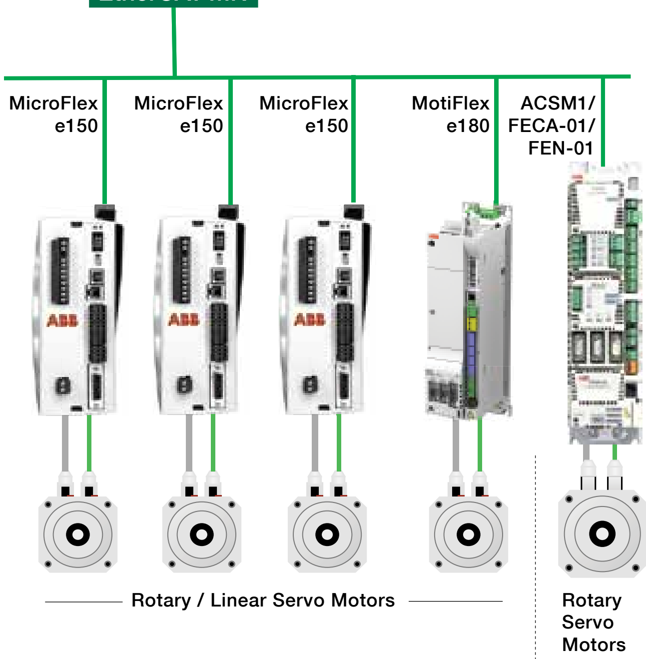


ABB EtherCAT multi-axis with AC500 PLC centralized control with real-time communications



Ideal partner to
ABB AC500 PLC

– EtherCAT Master
– IEC61131 programming
– PLCopen Motion



EtherCAT coordinated motion solution

– Industry standard PLCopen (IEC 61131) motion functions fully supported by AC500 PLC
– Cyclic sync position control
– 2 Ports RJ45 Ethernet physics (easy daisy chaining, no hubs)
– DS402 drive profile (IEC 61800-7 Annex A)
– ACSM1 drive with FECA-01 EtherCAT adapter up to 355 kW (450 HP, 580A)

MicroFlex e150 function supported by ‘option’ type

Feature/function	E152AxxEINA	E152AxxEIOA
EtherCAT slave drive	Yes	Yes
EtherCAT, Modbus TCP	No	Yes
Mint programming	No	Yes
CP600 Support	No	Yes
Mint GDI Interface (Generic Drive Interface)	No	Yes
Dual encoder for position loop	Yes	Yes
Dual encoder line shaft following/flyer shear/CAM	No	Yes
Digital and analog IO	Used as drive signals Controlled by EtherCAT master	Used as drive signals Mint machine control IO Controlled by EtherCAT master

Reference Bill of Material (not a complete list):
EtherCAT PLC Master / HMI / Servo Drives / Servo Motors / Cables
(5) - Axes High Performance Coordinated Motion System

ABB PLC/HMI/Software

Qty	Catalog Number	Description	List Price	Price List Section Ref.	Notes
1	1SAP150000R0271	PM590-ETH V2.0 2MB AC500 PLC CPU	$3,667	AC500 PLC	
1	1SAP112100R0270	TB521-ETH CPU BASEV2.0 AC500 PLC TERMN	$271	AC500 PLC	
1	1SAP170902R0001	CM579-ETHCAT COM MOD AC500 PLC COMM	$1,250	AC500 PLC	
1	1SAP240100R0001	DC532 16DI/16DC 24VDC AC500 PLC I/O	$485	AC500 PLC	
1	1SAP212200R0001	TU515 I/O BASE 24VDC SCR AC500 PLC TERMN	$84	AC500 PLC	
1	1SAP180600R0001	TA524 DUMMY MOD AC500 PLC ACC	$22	AC500 PLC	
1	1SAP192100R0002	PS552-MC-E MOTION LIB EXT AC500 PLC SOFT*	$676	AC500 PLC	
1	1SAP193000R0101	AUTOMATION BLDR V1.1 AC500 PLC SOFT*	$895	AC500 PLC	
1	1SAP551100R0001	CP651 CLR TOUCH 10.4" CP600 HMI PNL	$2,224	Control Panel	

* License only required if user has not already purchased.

ABB Servo Drives (EtherCAT Slave Drives, Encoder feedback)

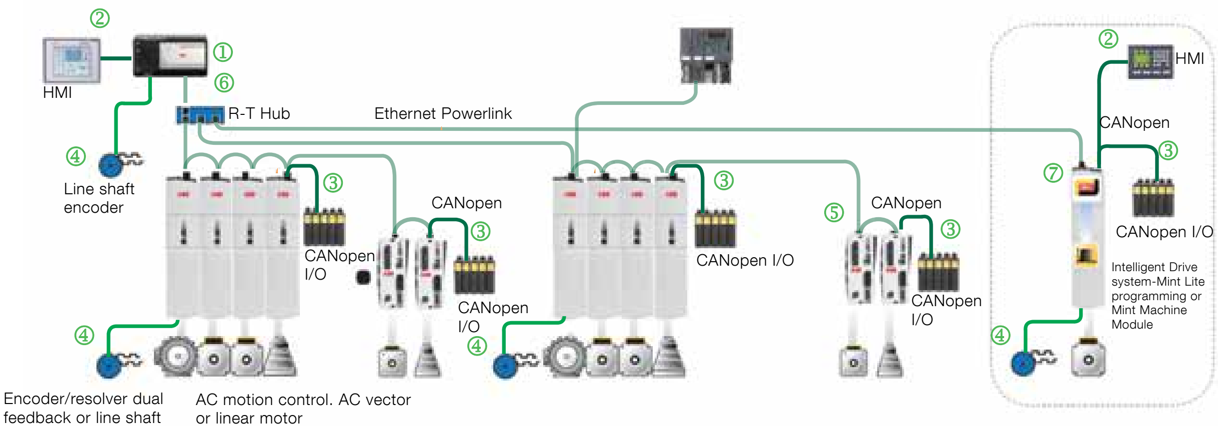
Qty	Catalog Number	Description	List Price	Price List Section Ref.	Notes
3	E152A03EINA	EtherCAT Slave Device Drive, 3A, 230V, MicroFlex e150	$1,260	AC Motion Control	300%, 3 s ratings available
3	FAN001-024	Fan Kit, 24VDC	$200	AC Motion Control	Provides full ratings
1	ACSM1-04AM-02A5-4	EtherCAT Slave Drive, 3A, 230V	$1,210	AC Motion Control	
1	FEN-01	Incr. Encoder adapter	$465	AC Motion Control	
1	FECA-01	EtherCAT Adapter	$400	AC Motion Control	
1	MFE180-04AN-03A0-4+L517	EtherCAT Slave MotiFlex e180	$1,725	AC Motion Control	

ABB Servo Motors / Motor and Feedback Cables

Qty	Catalog Number	Description	List Price	Price List Section Ref.	Notes
5	BSM80N-175RF	BSM Servo Motor, Rot Con w/ 2500 line enc	$1,769	Motors	Ref IBR1202-E
5	CBL030SP-12	12 amp cont pwr cable (10ft / 3.0m) w/con	$288	Motors	CE Con & Flying leads
5	CBL030SF-E2	Encoder feedback cable (10ft / 3.0m) w/con	$300	Motors	CE Con & DB15 for Drive

Automation Solutions
PowerLink NextMove Controller

Powerlink system overview solutions: greater than the sum of the parts



① NextMove e100, up to 16 axes coordinated motion (30 axes max.)

② HMI via Modbus RTU or CAN

③ CANopen I/O at any drive

④ Line shaft or dual loop encoders

⑤ MicroFlex e100 Motion Control Drives controlling rotary and linear servo motors

⑥ Class II repeating hubs for tree structure wiring

⑦ Mint plug-in card or Mint Lite sub system

NOTES:
- ACS355 and ACSM1 Drives can be added with FEPL-02 Powerlink adapter
- PLC via fieldbus

Reference Bill of Material (not a complete list):
Powerlink NextMove Controller/ HMI / Servo Drives / Servo Motors / Cables
Coordinated High Performance Motion System

ABB NextMove Motion Controller / KPD HMI

Qty	Catalog Number	Description	List Price	Price List Section Ref.	Notes
1	NXE100-1608DBW	Powerlink Motion Controller	$3,185	AC Motion Control Drives	Max. 8 axes
1	---	Mint Workbench Software	No Charge	AC Motion Control Drives	Download from web
1	KPD202-501	Operator Panel	$1,288	AC Motion Control Drives	

ABB Servo Drives (Powerlink Drives, Encoder feedback)

Qty	Catalog Number	Description	List Price	Price List Section Ref.	Notes
4	MFE230A003BW	MicroFlex e100, 3A, 230V	$1,352	AC Motion Control Drives	300%, 3 s ratings available
4	FAN001-024	Fan Kit, 24VDC	$200	FAN001-024	Provides full ratings

ABB Servo Motors / Motor and Feedback Cables

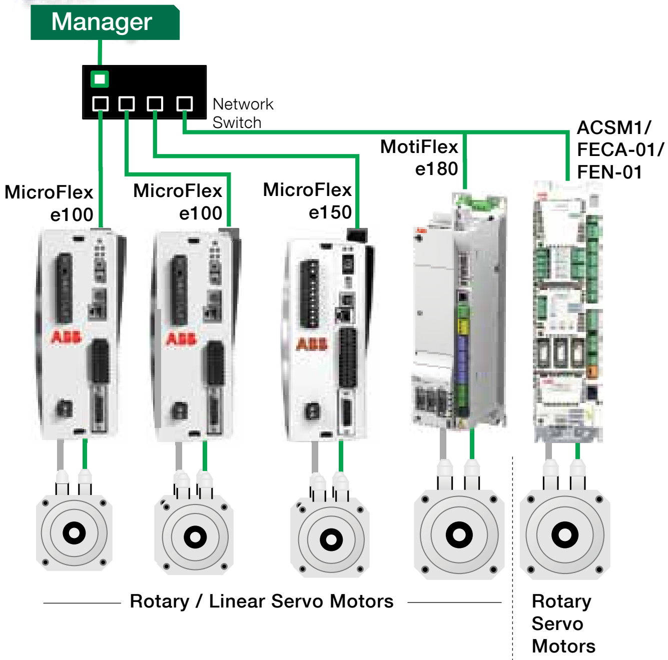
Qty	Catalog Number	Description	List Price	Price List Section Ref.	Notes
4	BSM50N-275AB2	BSM Servo Motor, 0.9Nm w/ BiSS (multi-turn)	$1,701	Motors	Ref IBR1202-E
4	CBL061SP-12	12 amp cont pwr cable (20ft / 6.1m) w/con	$371	Motors	CE Con & Flying leads
4	CBL061SF-D2	BISS fdbk cable (20ft / 6.1m) w/con	$353	Motors	CE Con & DB15 for Drive

Automation Solutions
Modbus

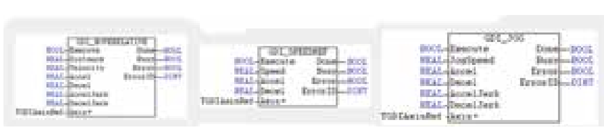
Decentralized control simple
Drive control for distributed axes



ABB AC500 PLC
– Modbus TCP/IP Master
– IEC61131 programming



Ethernet non-coordinated motion solution
– Modbus TCP/IP
– Generic Drive Interface (GDI)
– Predefined simple PLC drive control
– Customisation possible though Mint
– Simple PLC functions for AC500



– Simple wizard drive based configuration and pre-defined PLC drive data
  – Up and running in shorter time
  – Making distributed control easy
– MicroFlex e100, MicroFlex 150, ACSM1, MotiFlex e180 drives

Reference Bill of Material (not a complete list):
Modbus TCP PLC / HMI / Servo Drives / Servo Motors / Cables
Non-Coordinated Simple Motion System

ABB PLC/HMI/Software

Qty	Catalog Number	Description	List Price	Price List Section Ref.	Notes
1	1SAP121200R0071	PM556-TP-ETH 512KB AC500 eCo PLC CPU Modbus TCP protocol built-in to PM556	$673	AC500 PLC	
1	1SAP240100R0001	DC532 16DI/16DC 24VDC AC500 PLC I/O	$485	AC500 PLC	
1	1SAP212200R0001	TU515 I/O BASE 24VDC SCR AC500 PLC TERMN	$84	AC500 PLC	
1	1TNE968901R3101	TA563-9 SCR SIDE AC500 eCo PLC TERMN	$11	AC500 PLC	
1	1TNE968901R3102	TA563-11 SCR SID AC500 eCo PLC TERMN	$13	AC500 PLC	
1	1SAP192100R0002	PS552-MC-E MOTION LIB EXT AC500 PLC SOFT*	$676	AC500 PLC	
1	1SAP193000R0101	AUTOMATION BLDR V1.1 AC500 PLC SOFT*	$895	AC500 PLC	
1	1SAP550100R0001	CP650 CLR TOUCH 10.4" CP600 HMI PNL	$2,224	Control Panel	

* License only required if user has not already purchased.

ABB Servo Drives (Modbus TCP Drives, Encoder feedback)

Qty	Catalog Number	Description	List Price	Price List Section Ref.	Notes
1	E152A03EINA	Modbus TCP Drive, 3A, 230V MicroFlex e150	$1,260	AC Motion Control	300%, 3 s ratings available
3	FAN001-024	Fan Kit, 24VDC	$200	AC Motion Control	Provides full ratings
2	MFE230A003BW	MicroFlex e100, 3A	$1,352	AC Motion Control	
1	ACSM1-04AM-02A5-4	EtherCAT Slave Drive, 3A, 230V	$1,210	AC Motion Control	
1	FEN-01	Incr. Encoder adapter	$465	AC Motion Control	
1	FECA-01	EtherCAT Adapter	$400	AC Motion Control	
1	MFE180-04AN-03A0-4+L517	EtherCAT Slave MotiFlex e180	$1,725	AC Motion Control	

ABB Servo Motors / Motor and Feedback Cables

Qty	Catalog Number	Description	List Price	Price List Section Ref.	Notes
5	BSM90C-2250AF	BSM Servo Motor, 5.2Nm w / 2500 line enc	$1,280	Motors	Ref IBR1202-E
3	CBL015RP-12	12 amp cont raw pwr cable (5ft / 1.5m)	$60	Motors	No pwr connector
3	CBL015SF-E2	Encoder feedback cable (10ft / 3.0m) w/con	$269	Motors	CE Con & DB15 for Drive
1		ACSM1 Cable	TBD		

Automation Solutions
Pulse Train Output, PLC, HMI



- Programming with PLCopen Motion Control Library PS552-MC-E
- One FM562 can control two axe
- Fits ABB Motion Drive MicroFlex Analog but also standard Drives with RS422 interface

Reference Bill of Material (not a complete list):
Pulse Train Output (PTO) PLC/ HMI / PTO Servo Drives / Servo Motors / Cables
(2) - Axes Non-Coordinated Simple Motion System

ABB PLC/HMI/Software

Qty	Catalog Number	Description	List Price	Price List Section Ref.	Notes
1	1SAP121200R0071	PM556-TP-ETH 512KB AC500 eCo PLC CPU Modbus TCP protocol built-in to PM556	$673	AC500 PLC	
1	1SAP233100R0001	FM562 PTO MODULE AC500 eCo PLC I/O	$379	AC500 PLC	
1	1SAP231900R0000	DC562 16DC 24VDC AC500 eCo PLC I/O	$182	AC500 PLC	
3	1TNE968901R3101	TA563-9 SCR SIDE AC500 eCo PLC TERMN	$11	AC500 PLC	
3	1TNE968901R3102	TA563-11 SCR SID AC500 eCo PLC TERMN	$13	AC500 PLC	
1	1SAP192100R0002	PS552-MC-E MOTION LIB EXT AC500 PLC SOFT*	$676	AC500 PLC	
1	1SAP193000R0101	AUTOMATION BLDR V1.1 AC500 PLC SOFT*	$895	AC500 PLC	
1	1SAP535100R0001	CP635 CLR TOUCH 7" CP600 HMI PNL	$1,215	Control Panel	

* License only required if user has not already purchased.

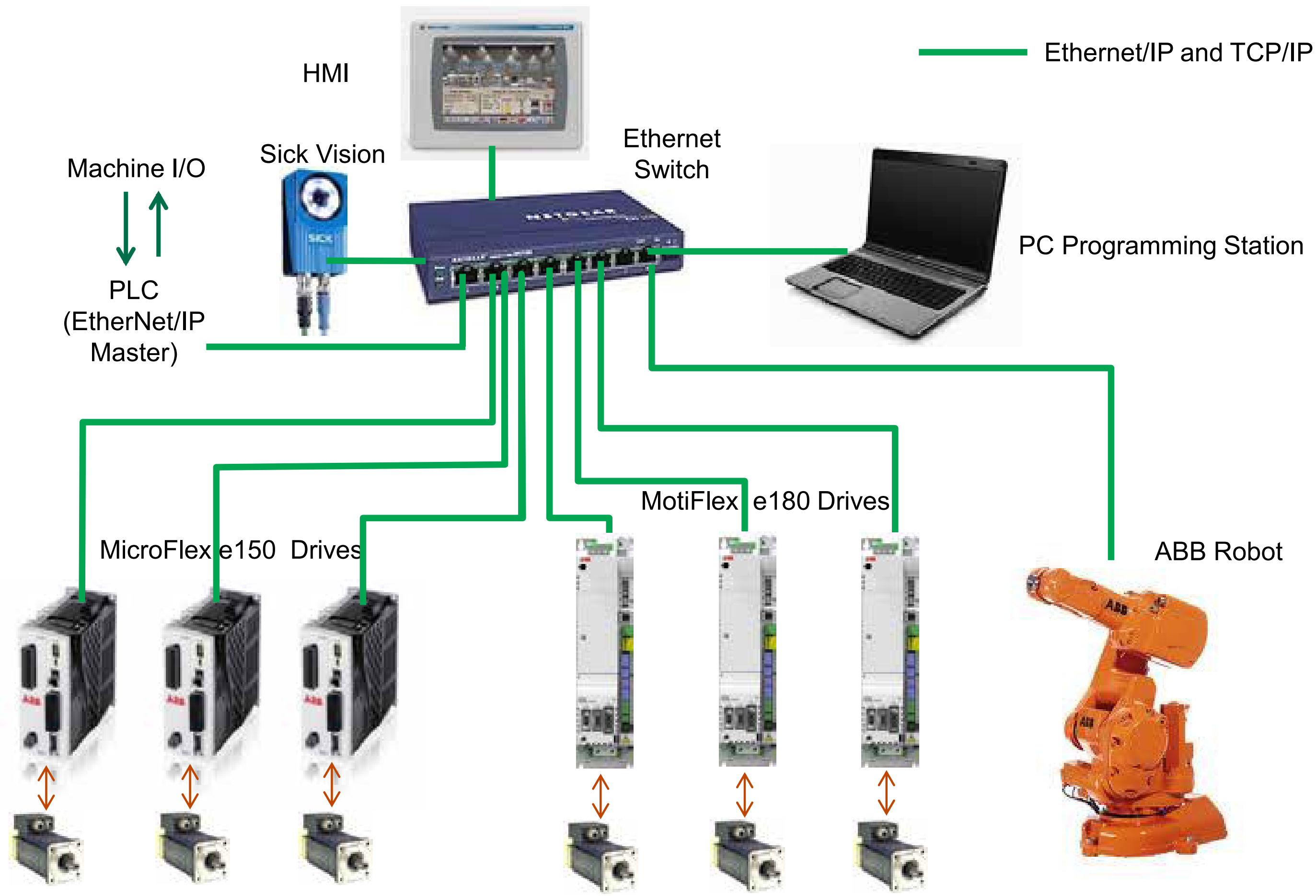
ABB Servo Drives (Modbus TCP Drives, Encoder feedback)

Qty	Catalog Number	Description	List Price	Price List Section Ref.	Notes
2	FMH2A03TR-EN23W	MicroFlex Analog Drive, 3A, 230V	$1,027	AC Motion Control Drives	300%, 3s ratings available

ABB Servo Motors / Motor and Feedback Cables

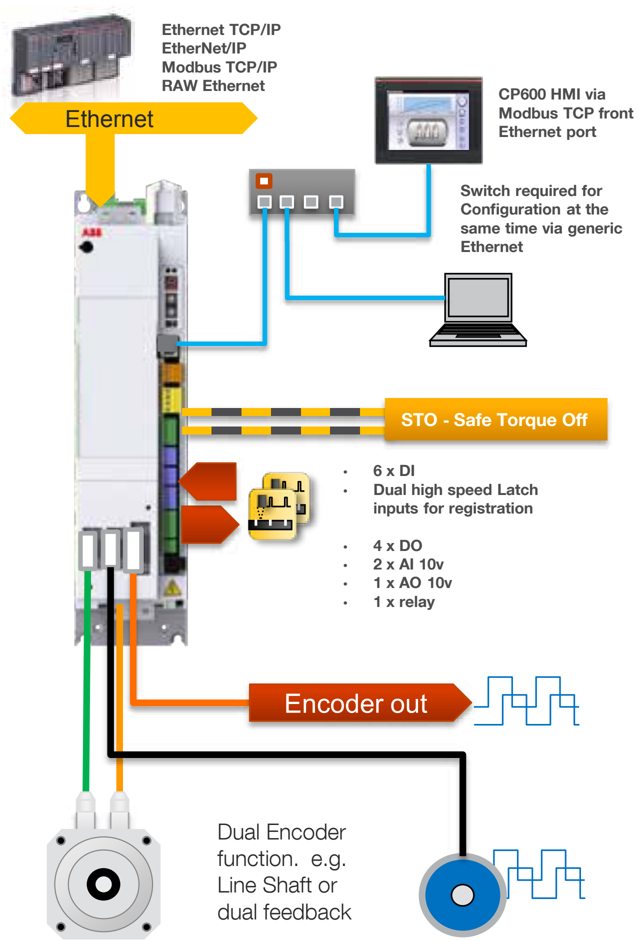
Qty	Catalog Number	Description	List Price	Price List Section Ref.	Notes
2	BSM63N-275AF	BSM Servo Motor, 1.47Nm w/2500 line Enc	$1,802	Motors	Ref IBR1202-E
2	CBL091SP-12	12 amp cont pwr cable (30ft / 9.1m) w/con	$458	Motors	CE Con & Flying leads
2	CBL091SF-E2	Encoder feedback cable (30ft / 9.1m) w/con	$356	Motors	CE Con & DB15 for Drive

Automation Solutions
EtherNet/IP: System Overview example



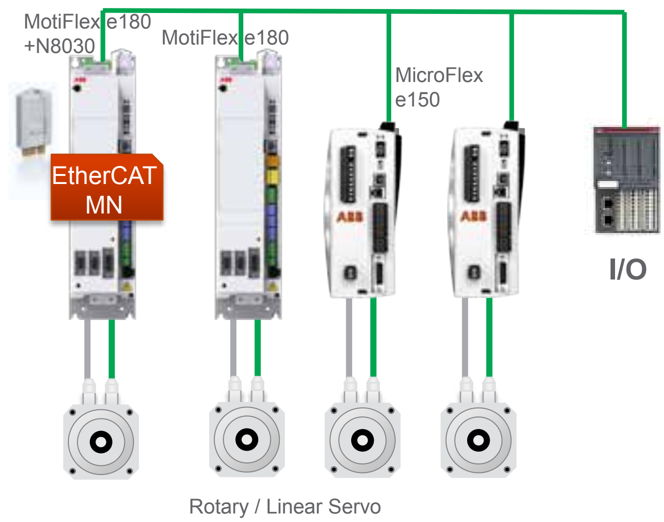
Automation Solutions

Feature-Rich, MotiFlex e180 Intelligent Drive Solution - Advanced MINT Programmable Drive Solution



- MINT programmable
  - Includes Cams and Flying shears
  - Canned applications can be developed
  - Multitasking and Events provide for powerful, responsive applications
- Dual high speed latch inputs for registration e.g. product or print
- Dual feedback - line shaft following for electronically geared motion such as flying shears / CAM / gearing
- Ethernet communications
  - HMI, PC or PLC comms
- Safe Torque Off (STO) standard
- Encoder out for external controller or slave follower drive, e.g. conveyor

EtherCAT Multi-Axis Interpolated Solution - MotiFlex e180 Master (Est. Q4, '15), MotiFlex e180 and MicroFlex e150 Drives



Intelligent Motion Drive system

- Future MotiFlex e180 (+N8030) becomes an EtherCAT Master (MN) (est. Q4, 2015)
- Combine with any other ABB EtherCAT drives for a multi-axis coordinated motion solution – I/O also
- Similar in concept to the MINT Machine Module (option card) for MotiFlex e100
- Interpolated motion on multi-axis
- Licensed motion via e180 memory module
- EtherCAT I/O expansion
- Notes: Ring topology not supported

Motors
AC brushless motors

Brushless servo motor identification matrix N and C series

[ ] [ ] **B** **S** **M** [ ] [ ] [ ] [ ] – [ ] [ ] [ ] [ ] [ ] [ ] [ ]

Blank = Std
SS = Stainless steel

NOTE: Not all options are available on all motors. Contact your local Baldor District Office.

Frame

IEC	NEMA
50*	5N
63	6N
80	8N
90	9N
100	10N
132	

Series
N
C

Motor size
1
2
3
4
etc.

Winding code
50
75
etc.

Motor options

Description	Connections				
	Standard (metric) threaded style	Optional (inch) quick connect	Cables[5]	Flying leads[5]	Rotatable (metric) threaded**
Motor (no shaft seal)	A	I	E	M	R
Motor and brake	B	J	F	N	S
Motor with shaft oil seal	C	K	G	O	T
Motor with brake and shaft oil seal	D	L	H	P	U

Feedback options

A = Resolver
B = Absolute encoder – single-turn (BiSS)
B2 = Absolute encoder – multi-turn (BiSS)
D = Absolute encoder – multi-turn (EnDat)
D2 = Absolute encoder – single-turn (EnDat)
D3 = Absolute encoder – single-turn (Hiperface)
D4 = Absolute encoder – multi-turn (Hiperface)
S1 = Absolute encoder – single-turn (SSI)
S2 = Absolute encoder – multi-turn (SSI)
E = Incremental encoder w/ commutation (1000 ppr)
F = Incremental encoder w/ commutation (2500 ppr)
H = Halls only
V = Encoder mounting only
Y = Resolver mounting only

Accessory options

Blank = No option
M = No keyway
N = DIN 42955-R
O = DIN 42955-R and no keyway
P = Optional motor connector on BSM 90 & 100 (NOTE: This option available only if current less than 28 amps)
X = Special option (order by spec no. only)
Z1 = Blower (115 V AC) (not available on all motors)
Z2 = Blower (230 V AC) (not available on all motors)
Z3 = Blower (24 V DC)
Z4 = Blower (230/460 V AC) for BSM132 only

NOTES:

- * The standard BSM50 Series has as standard no keyway.
- ** Rotatable connectors not available on BSM50–Series
1) The standard BSM50/63/80 Series includes feedback, two threaded connectors for feedback and motor terminations, square mounting flange
2) The standard BSM90/100 Series includes feedback, one threaded connector for feedback termination, termination of motor lead wires on terminal block, square mounting flange
3) BSM Motors do not have shaft seal as standard. BSM motors are IP54 Motors meet IP55 with addition of shaft oil seal
4) SSBSM motors available with IEC mounting and include as standard a shaft seal. SSBSM motors are IP67
5) Shielded cables and flying leads are one meter long as standard. Flying leads option is composed of individual wires with no armored protection
6) Motors may be used with 115/230/400/460 volt controls. Verify that maximum speed is not exceeded
7) Pricing for NEMA versions 5N, 6N, 8N, 9N and 10N same as 50, 63, 80, 90 and 100
8) Contact Baldor for special options
9) SSBSM 90/100 not available

Options chart - list price adder N and C series

Motor option description	Code	Motor series					
		50N	63N	80N 80C	90N 90C [6]	100N 100C [6]	132C [6]
The following options are supplied with either threaded connector (A, B, C, D) or optional quick style connector (I, J, K, L) [7]							
Motor (no shaft seal)	A or I	STD	STD	STD	STD	STD	STD
Motor and brake	B or J	400	414	414	512	650	2,166
Motor with shaft oil seal	C or K	37	37	37	37	37	41
Motor with brake and shaft oil seal	D or L	437	451	451	549	687	2,206
The following options are supplied with shielded cables							
(length = 1 meter)							
Motor (no shaft seal)	E	40	40	40	73	73	N/A
Motor and brake	F	440	454	454	585	723	N/A
Motor with shaft oil seal	G	77	77	77	110	110	N/A
Motor with brake and shaft oil seal	H	477	491	491	622	760	N/A
The following options are supplied with flying leads							
(length = 1 meter)							
Motor (no shaft seal)	M	-24	-24	-24	N/C	N/C	N/A
Motor and brake	N	376	390	390	512	650	N/A
Motor with shaft oil seal	O	13	13	13	37	37	N/A
Motor with brake and shaft oil seal	P	413	427	427	549	687	N/A
The following options are supplied with rotatable (metric) threaded connectors [3 4 5]							[8]
Motor (no shaft seal)	R	N/A	49	49	49	49	118
Motor and brake	S	N/A	463	463	561	699	2,284
Motor with shaft oil seal	T	N/A	86	86	86	86	159
Motor with brake and shaft oil seal	U	N/A	500	500	598	736	2,325
Feedback option description							
Resolver	A	0					
Incremental encoder with hall commutation							
(1000ppr)	E	111					
(2500ppr)	F	111					
(2000 - 5000)	C/F						
Absolute encoder - single-turn							
BiSS single-turn	B	732					
EnDat single-turn	D2	1,347					
Hiperface single-turn [1]	D3	475					
SSI single-turn	S1	C/F					
Absolute encoder - multi-turn							
BiSS multi-turn	B2	600					
EnDat multi-turn	D	2,016					
Hiperface multi-turn [1]	D4	494					
SSI multi-turn	S2	1,768					
Special feedback	X						
Standard feedback mounting only	Y	-85					
Halls only	H	85					
Accessory option description							
No option	BLANK	STD					
No keyway	M	0					
DIN standard 42955-R	N	158					
DIN 42955-R and no keyway	O	158					
Optional motor power connector [2]	P	STD	STD	STD	20	20	N/A
Blower, external (single phase)	Z1, Z2, Z3	N/A	N/A	N/A	1,330	934	N/A
Blower, external for BSM132 only	Z4	N/A	N/A	N/A	N/A	N/A	1,830

NOTES: STD = Standard
C/F = Contact factory
N/C = No additional charge
N/A = Not available
Standard fail safe brake is 24V DC.
1) Can only be used with Baldor MintDrive[II], Baldor Flex+Drive[II] and Baldor FlexDrive[II]
2) Do not specify this option (accessory option "P") if motor continuous current is greater than 28 Amps. Straight connector mounted on 90 deg adaptor, no J-box.
3) Rotatable thru 180 degrees
4) Rotatable connectors for power and feedback with no junction box on BSM90/100/132 motors.
5) Rotate-able connectors are **not available on SSBSM-series**
6) Motors come standard with terminal box. Strain relief for motor power and connector for feedback.
7) Option I, J, K, L not available on BSM132
8) 70 amp rotatable connector (no junction box)

Motors
AC brushless motors



BSM C-series (medium inertia)

Continuous stall torque		Continuous stall amps	Nominal bus volts	Motor speed (RPM)	Catalog number with resolver	List price	Catalog number with encoder	List price	Multiplier symbol
Lb-in	N-m								
Threaded connectors on BSM 50/63/80; terminal box on BSM 90/100/132 .									
10.6	1.2	2.7	300	6000	BSM80C-150AA	$1,078	BSM80C-150AF	$1,188	E4
		1.9	300	4000	BSM80C-175AA	$1,078	BSM80C-175AF	$1,188	E4
21.2	2.4	5.2	300	6000	BSM80C-250AA	$1,139	BSM80C-250AF	$1,250	E4
		3.2	300	4000	BSM80C-275AA	$1,139	BSM80C-275AF	$1,250	E4
		1.6	600	4000	BSM80C-2150AA	$1,139	BSM80C-2150AF	$1,250	E4
23	2.1	2.1	300	2000	BSM90C-1150AA	$1,053	BSM90C-1150AF	$1,163	E4
31.8	3.6	7.8	200	4000	BSM80C-350AA	$1,175	BSM80C-350AF	$1,285	E4
		6.3	300	4000	BSM80C-375AA	$1,175	BSM80C-375AF	$1,285	E4
		3.2	600	4000	BSM80C-3150AA	$1,175	BSM80C-3150AF	$1,285	E4
38	4.3	6.3	300	4000	BSM80C-475AA	$1,214	BSM80C-475AF	$1,324	E4
		3.1	600	4000	BSM80C-4150AA	$1,214	BSM80C-4150AF	$1,324	E4
44.3	5.0	4.0	300	2400	BSM100C-1150AA	$1,536	BSM100C-1150AF	$1,646	E4
		2.3	300	1200	BSM100C-1250AA	$1,536	BSM100C-1250AF	$1,646	E4
46.0	5.2	9.0	300	4000	BSM90C-275AA	$1,169	BSM90C-275AF	$1,279	E4
		4.4	300	2000	BSM90C-2150AA	$1,169	BSM90C-2150AF	$1,279	E4
		2.5	300	1200	BSM90C-2250AA	$1,169	BSM90C-2250AF	$1,279	E4
69.0	7.8	12.0	300	4000	BSM90C-375AA	$1,303	BSM90C-375AF	$1,413	E4
		6.0	600	4000	BSM90C-3150AA	$1,303	BSM90C-3150AF	$1,413	E4
		3.5	300	1200	BSM90C-3250AA	$1,303	BSM90C-3250AF	$1,413	E4
88.5	10.0	8.0	300	2400	BSM100C-2150AA	$1,716	BSM100C-2150AF	$1,826	E4
		5.0	300	1200	BSM100C-2250AA	$1,716	BSM100C-2250AF	$1,826	E4
125.7	14.2	11.4	300	2400	BSM100C-3150AA	$1,934	BSM100C-3150AF	$2,045	E4
		7.0	300	1200	BSM100C-3250AA	$1,934	BSM100C-3250AF	$2,045	E4
177.0	20.0	16.8	300	2400	BSM100C-4150AA	$2,274	BSM100C-4150AF	$2,383	E4
		10.6	300	1200	BSM100C-4250AA	$2,274	BSM100C-4250AF	$2,383	E4
221.3	25.0	21.0	600	4000	BSM100C-5150AA	$2,580	BSM100C-5150AF	$2,690	E4
		13.0	600	2400	BSM100C-5250AA	$2,580	BSM100C-5250AF	$2,690	E4
265.5	30.0	24.0	600	4000	BSM100C-6150AA	$2,745	BSM100C-6150AF	$2,855	E4
		14.0	600	2400	BSM100C-6250AA	$2,745	BSM100C-6250AF	$2,855	E4
469	53	37	650	3500	BSM132C-3200AA	$7,333	BSM132C-3200AF	$7,444	E4
619	70	43	650	3500	BSM132C-4200AA	$7,751	BSM132C-4200AF	$7,862	E4
770	87	50	650	3500	BSM132C-5200AA	$8,191	BSM132C-5200AF	$8,302	E4
929	105	52	650	3500	BSM132C-6200AA	$8,806	BSM132C-6200AF	$8,917	E4
973	110	72	650	3500	BSM132C-7200AA	$9,136	BSM132C-7200AF	$9,247	E4
1017	115	74	650	3500	BSM132C-8200AA	$9,466	BSM132C-8200AF	$9,577	E4
1062	120	79	650	3500	BSM132C-9200AA	$9,748	BSM132C-9200AF	$9,859	E4
Rotatable connectors									
21.4	2.4	3.2	300	4000	BSM80C-275RA	$1,188	BSM80C-275RF	$1,299	E4
31.8	3.6	6.3	300	4000	BSM80C-375RA	$1,224	BSM80C-375RF	$1,334	E4
38	4.3	6.3	300	4000	BSM80C-475RA	$1,263	BSM80C-475RF	$1,373	E4
69	7.8	6.0	600	4000	BSM90C-3150RA	$1,352	BSM90C-3150RF	$1,462	E4

Shaded areas are stocked products.

Motors
AC brushless motors



BSM N-series (low inertia)

Continuous stall torque		Continuous stall amps	Nominal bus volts	Motor speed (RPM)	Catalog number with resolver	List price	Catalog number with encoder	List price	Multiplier symbol
Lb-in	N-m								
Threaded connectors on BSM 50/63/80; terminal box on BSM 90/100 .									
3.9	0.45	1.5	160	4000	BSM50N-133AA	$957	BSM50N-133AF	$1,067	E4
		0.79	300	4000	BSM50N-175AA	$957	BSM50N-175AF	$1,067	E4
6.8	0.77	2.1	200	6000	BSM63N-133AA	$1,536	BSM63N-133AF	$1,646	E4
		1.9	200	4000	BSM63N-150AA	$1,536	BSM63N-150AF	$1,646	E4
		1.0	300	4000	BSM63N-175AA	$1,536	BSM63N-175AF	$1,646	E4
7.9	0.9	2.8	160	4000	BSM50N-233AA	$1,101	BSM50N-233AF	$1,212	E4
		1.4	160	2000	BSM50N-275AA	$1,101	BSM50N-275AF	$1,212	E4
12	1.36	4.5	160	4000	BSM50N-333AA	$1,248	BSM50N-333AF	$1,358	E4
		2.3	300	4000	BSM50N-375AA	$1,248	BSM50N-375AF	$1,358	E4
13	1.4	4.2	200	6000	BSM63N-233AA	$1,691	BSM63N-233AF	$1,802	E4
		3.0	200	4000	BSM63N-250AA	$1,691	BSM63N-250AF	$1,802	E4
		2.1	300	4000	BSM63N-275AA	$1,691	BSM63N-275AF	$1,802	E4
14.6	1.6	4.7	200	6000	BSM80N-133AA	$1,610	BSM80N-133AF	$1,720	E4
		3.0	300	6000	BSM80N-150AA	$1,610	BSM80N-150AF	$1,720	E4
		2.1	300	4000	BSM80N-175AA	$1,610	BSM80N-175AF	$1,720	E4
18.5	2	6.2	200	6000	BSM63N-333AA	$1,876	BSM63N-333AF	$1,986	E4
		4.4	200	4000	BSM63N-350AA	$1,876	BSM63N-350AF	$1,986	E4
		3.0	300	4000	BSM63N-375AA	$1,876	BSM63N-375AF	$1,986	E4
28.3	3.2	8.7	200	6000	BSM80N-233AA	$1,772	BSM80N-233AF	$1,882	E4
		5.6	200	4000	BSM80N-250AA	$1,772	BSM80N-250AF	$1,882	E4
		3.9	300	4000	BSM80N-275AA	$1,772	BSM80N-275AF	$1,882	E4
40	4.5	12.9	200	6000	BSM80N-333AA	$2,005	BSM80N-333AF	$2,116	E4
		8.6	200	4000	BSM80N-350AA	$2,005	BSM80N-350AF	$2,116	E4
		5.5	300	4000	BSM80N-375AA	$2,005	BSM80N-375AF	$2,116	E4
53	6	8.0	300	4000	BSM90N-175AA	$2,087	BSM90N-175AF	$2,197	E4
		4.1	300	2000	BSM90N-1150AA	$2,087	BSM90N-1150AF	$2,197	E4
		2.6	300	1200	BSM90N-1250AA	$2,087	BSM90N-1250AF	$2,197	E4
88	10	12	300	4000	BSM90N-275AA	$2,416	BSM90N-275AF	$2,527	E4
		6.3	300	2000	BSM90N-2150AA	$2,416	BSM90N-2150AF	$2,527	E4
		4.3	300	1200	BSM90N-2250AA	$2,416	BSM90N-2250AF	$2,527	E4
117	13.3	19	300	4000	BSM90N-375AA	$3,056	BSM90N-375AF	$3,166	E4
		8.6	300	2000	BSM90N-3150AA	$3,056	BSM90N-3150AF	$3,166	E4
		5.5	300	1200	BSM90N-3250AA	$3,056	BSM90N-3250AF	$3,166	E4
123	14.0	9.4	300	2000	BSM100N-1150AA	$2,683	BSM100N-1150AF	$2,793	E4
		5.9	300	1200	BSM100N-1250AA	$2,683	BSM100N-1250AF	$2,793	E4
203	23.0	15.5	300	2000	BSM100N-2150AA	$3,200	BSM100N-2150AF	$3,310	E4
		9.9	300	1200	BSM100N-2250AA	$3,200	BSM100N-2250AF	$3,310	E4
300	33.9	21	300	2000	BSM100N-3150AA	$3,685	BSM100N-3150AF	$3,794	E4
		14.7	300	1200	BSM100N-3250AA	$3,685	BSM100N-3250AF	$3,794	E4
354	40.0	28.9	300	2000	BSM100N-4150AA	$4,535	BSM100N-4150AF	$4,645	E4
		18	300	1200	BSM100N-4250AA	$4,535	BSM100N-4250AF	$4,645	E4
Rotatable connectors									
6.8	0.77	1.0	300	4000	BSM63N-175RA	$1,585	BSM63N-175RF	$1,695	E4
13	1.4	2.1	300	4000	BSM63N-275RA	$1,740	BSM63N-275RF	$1,851	E4
18.5	2	3.0	300	4000	BSM63N-375RA	$1,925	BSM63N-375RF	$2,035	E4
28.3	3.2	3.9	300	4000	BSM80N-275RA	$1,821	BSM80N-275RF	$1,931	E4
40	4.5	5.5	300	4000	BSM80N-375RA	$2,054	BSM80N-375RF	$2,165	E4

Shaded areas are stocked products.

Brake equipped BSM servo motors

Continuous stall torque		Continuous stall amps	Nominal bus volts	Motor speed (RPM)	Catalog number	List price	Multiplier symbol
Lb-in	N-m						
With resolver and 24 V DC brakes							
6.8	0.77	1.0	300	4000	BSM63N-175BA	$1,950	E4
13	1.4	2.1	300	4000	BSM63N-275BA	$2,105	E4
14.6	1.6	2.1	300	4000	BSM80N-175BA	$2,024	E4
18.5	2.0	3.0	300	4000	BSM63N-375BA	$2,290	E4
28.3	3.2	3.9	300	4000	BSM80N-275BA	$2,186	E4
40	4.5	5.5	300	4000	BSM80N-375BA	$2,419	E4
53	6.0	8.0	300	4000	BSM90N-175BA	$2,599	E4
117	13.3	19	300	4000	BSM90N-375BA	$3,568	E4
123	14.0	9.4	300	2000	BSM100N-1150BA	$3,333	E4
300	33.9	21	300	2000	BSM100N-3150BA	$4,335	E4

NOTES: *BA suffix indicates 24 V DC internal electrically released spring set brake.
Brake is for holding position only. Not for stopping.

Shaded areas are stocked products.

Motors
AC brushless motors



Stainless steel brushless AC servo motors - SSBSM series

Continuous stall torque		Continuous stall amps	Nominal bus volts	Motor speed (RPM)	Catalog number with resolver	List price	Catalog number with encoder	List price	Multiplier symbol
Lb-in	N-m								
3.9	0.45	0.8	300	4000	SSBSM50N-175CA	$2,479	SSBSM50N-175CF	$2,589	E4
7.9	0.9	1.4	160	2000	SSBSM50N-275CA	$2,623	SSBSM50N-275CF	$2,734	E4
12	1.3	2.4	300	4000	SSBSM50N-375CA	$2,770	SSBSM50N-375CF	$2,880	E4
11	1.2	1.7	300	4000	SSBSM63N-275CA	$3,268	SSBSM63N-275CF	$3,378	E4
18.5	1.7	2.5	300	4000	SSBSM63N-375CA	$3,453	SSBSM63N-375CF	$3,563	E4
23	2.5	3.1	300	4000	SSBSM80N-275CA	$3,228	SSBSM80N-275CF	$3,338	E4
32	3.6	4.4	300	4000	SSBSM80N-375CA	$3,461	SSBSM80N-375CF	$3,571	E4
8	0.9	1.9	300	4000	SSBSM80C-175CA	$2,533	SSBSM80C-175CF	$2,643	E4
16.8	1.9	2.6	300	4000	SSBSM80C-275CA	$2,598	SSBSM80C-275CF	$2,708	E4
25	2.8	5	300	4000	SSBSM80C-375CA	$2,633	SSBSM80C-375CF	$2,743	E4
30	3.4	5	300	4000	SSBSM80C-475CA	$2,672	SSBSM80C-475CF	$2,783	E4

NOTES: Standard SSBSM series includes IEC mounting flange.
Standard SSBSM50 has an standard no keyway and no tap on shaft end.
Standard SSBSM50/63/80 include two threaded stainless steel connectors for feedback and motor termination.
Order feedback and power cables separately.
Standard motor has Teflon stainless steel seal with Viton O-rings.
Standard encoder is 2500 ppr.

Shaded areas are stocked products.

Motors
Power cable

Motor power cable

Current rating	Length		Cable assemblies			Raw cable			Stainless steel cables		
	Feet	Meters	Threaded CE connector *	List price	Mult. sym.	No connector	List price	Mult. sym.	Threaded CE connector *	List price	Mult. sym.
	5	1.5	CBL015SP-12	$250	ED	CBL015RP-12	$60	ED	CBL015SP-12S	$646	ED
	10	3	CBL030SP-12	$288	ED	CBL030RP-12	$106	ED	CBL030SP-12S	$687	ED
	20	6.1	CBL061SP-12	$371	ED	CBL061RP-12	$184	ED	CBL061SP-12S	$770	ED
	30	9.1	CBL091SP-12	$458	ED	CBL091RP-12	$271	ED	CBL091SP-12S	$853	ED
12	50	15.2	CBL152SP-12	$655	ED	CBL152RP-12	$421	ED	CBL152SP-12S	$1,008	ED
	75	22.9	CBL229SP-12	$830	ED	CBL229RP-12	$620	ED	–	–	–
	100	30.5	CBL305SP-12	$1,027	ED	CBL305RP-12	$820	ED	–	–	–
	250	76	–	–	–	CBL760RP-12	$2,014	ED	–	–	–
	500	152.5	–	–	–	CBL1525RP-12	$4,006	ED	–	–	–
	5	1.5	CBL015SP-20	$302	ED	CBL015RP-20	$97	ED	CBL015SP-20S	$622	ED
	10	3	CBL030SP-20	$375	ED	CBL030RP-20	$176	ED	CBL030SP-20S	$662	ED
	20	6.1	CBL061SP-20	$515	ED	CBL061RP-20	$311	ED	CBL061SP-20S	$741	ED
20	30	9.1	CBL091SP-20	$666	ED	CBL091RP-20	$461	ED	CBL091SP-20S	$950	ED
	50	15.2	CBL152SP-20	$970	ED	CBL152RP-20	$737	ED	CBL152SP-20S	$980	ED
	75	22.9	CBL229SP-20	$1,346	ED	CBL229RP-20	$1,073	ED	–	–	–
	100	30.5	CBL305SP-20	$1,617	ED	CBL305RP-20	$1,411	ED	–	–	–
	5	1.5	CBL015SP-35	$445	ED	CBL015RP-35	$183	ED			
	10	3	CBL030SP-35	$537	ED	CBL030RP-35	$291	ED			
	20	6.1	CBL061SP-35	$702	ED	CBL061RP-35	$478	ED			
35	30	9.1	CBL091SP-35	$887	ED	CBL091RP-35	$731	ED			
	50	15.2	CBL152SP-35	$1,236	ED	CBL152RP-35	$1,097	ED			
	75	22.9	CBL229SP-35	$1,665	ED	CBL229RP-35	$1,409	ED	–	–	–
	100	30.5	CBL305SP-35	$2,094	ED	CBL305RP-35	$1,832	ED	–	–	–
	5	1.5				CBL015RP-50	$228	ED			
	10	3				CBL030RP-50	$364	ED			
	20	6.1				CBL061RP-50	$601	ED			
50	30	9.1				CBL091RP-50	$914	ED			
	50	15.2				CBL152RP-50	$1,397	ED			
	75	22.9				CBL229RP-50	$1,761	ED	–	–	–
	100	30.5				CBL305RP-50	$2,290	ED	–	–	–
	5	1.5				CBL015RP-90	$234	ED			
	10	3				CBL030RP-90	$459	ED			
	20	6.1				CBL061RP-90	$966	ED			
90	30	9.1				CBL091RP-90	$1,442	ED			
	50	15.2				CBL152RP-90	$2,404	ED			
	75	22.9				CBL229RP-90	$3,595	ED	–	–	–
	100	30.5				CBL305RP-90	$4,783	ED	–	–	–

NOTES: 1) BSM series require both power and feedback cables
2) CE style has shield tied to connector housing.
3) Consult appropriate drive installation manual for cable length limitations
* Cable assemblies include one connector on one end, flying leads other end

Shaded areas are stocked products.

Feedback cable

Current rating	Length		Cable assemblies			Raw cable			Stainless steel cables					
	Feet	Meters	Threaded CE connector *	List price	Mult. sym.	No connector	List price	Mult. sym.	Threaded CE connector *	List price	Mult. sym.			
Resolver	5	1.5	CBL015SF-R	$220	ED	CBL015RF-R	$40	ED	CBL015SF-RS	$338	ED	–	–	–
	10	3	CBL030SF-R	$242	ED	CBL030RF-R	$64	ED	CBL030SF-RS	$355	ED	–	–	–
	20	6.1	CBL061SF-R	$291	ED	CBL061RF-R	$112	ED	CBL061SF-RS	$410	ED	–	–	–
	30	9.1	CBL091SF-R	$343	ED	CBL091RF-R	$165	ED	CBL091SF-RS	$452	ED	–	–	–
	50	15.2	CBL152SF-R	$425	ED	CBL152RF-R	$273	ED	CBL152SF-RS	$550	ED	–	–	–
	75	22.9	CBL229SF-R	$540	ED	CBL229RF-R	$393	ED	–	–	–	–	–	–
	100	30.5	CBL305SF-R	$599	ED	CBL305RF-R	$512	ED	–	–	–	–	–	–
	250	76	–	–	–	CBL760RF-R	$1,266	ED		–		–	–	–
	500	152.5	–	–	–	CBL1525RF-R	$2,425	ED		–		–	–	–
Encoder/ hall cable	5	1.5	CBL015SF-E	$242	ED	CBL015RF-E	$44	ED	CBL015SF-ES	$353	ED	–	–	–
	10	3	CBL030SF-E	$244	ED	CBL030RF-E	$69	ED	CBL030SF-ES	$383	ED	–	–	–
	20	6.1	CBL061SF-E	$287	ED	CBL061RF-E	$126	ED	CBL061SF-ES	$397	ED	–	–	–
	30	9.1	CBL091SF-E	$328	ED	CBL091RF-E	$183	ED	CBL091SF-ES	$494	ED	–	–	–
	50	15.2	CBL152SF-E	$412	ED	CBL152RF-E	$277	ED	CBL152SF-ES	$555	ED	–	–	–
	75	22.9	CBL229SF-E	$540	ED	CBL229RF-E	$458	ED	–	–	–	–	–	–
	100	30.5	CBL305SF-E	$630	ED	CBL305RF-E	$545	ED	–	–	–	–	–	–
	250	76	–	–	–	CBL760RF-E	$1,246	ED	–	–	–	–	–	–
	500	152.5	–	–	–	CBL1525RF-E	$2,452	ED	–	–	–	–	–	–
			Resolver feedback threaded CE connector and DB9 **			Encoder feedback threaded CE connector high density DB15 **								
For use with series-II drives and MotiFlex e100, e180, & Microflex e150 - resolver options only	5	1.5	CBL015SF-R1	$280	ED	CBL015SF-E1	$260	ED	CBL015SF-D1	$255	ED	–	–	–
	10	3	CBL030SF-R1	$295	ED	CBL030SF-E1	$271	ED	CBL030SF-D1	$275	ED	–	–	–
	20	6.1	CBL061SF-R1	$350	ED	CBL061SF-E1	$298	ED	CBL061SF-D1	$324	ED	–	–	–
	30	9.1	CBL091SF-R1	$396	ED	CBL091SF-E1	$366	ED	CBL091SF-D1	$394	ED	–	–	–
	50	15.2	CBL152SF-R1	$493	ED	CBL152SF-E1	$451	ED	CBL152SF-D1	$483	ED	–	–	–
	75	22.9	CBL229SF-R1	$600	ED	CBL229SF-E1	$558	ED	CBL229SF-D1	$627	ED	–	–	–
	100	30.5	CBL305SF-R1	$699	ED	CBL305SF-E1	$646	ED	CBL305SF-D1	$758	ED	–	–	–
			Encoder feedback threaded CE connector and std DB15 **			SSI feedback threaded CE connector and std DB15 **			EnDat *** feedback threaded ** CE connector and std DB15			BiSS *** feedback threaded*** CE connector and std DB15		
For use with MicroFlex, e100, e150, & e180 drives	5	1.5	CBL015SF-E2	$269	ED	CBL015SF-S2	$223	ED	CBL015SF-D2	$270	ED	CBL015SF-B2	$306	ED
	10	3	CBL030SF-E2	$300	ED	CBL030SF-S2	$239	ED	CBL030SF-D2	$297	ED	CBL030SF-B2	$333	ED
	20	6.1	CBL061SF-E2	$316	ED	CBL061SF-S2	$282	ED	CBL061SF-D2	$353	ED	CBL061SF-B2	$371	ED
	30	9.1	CBL091SF-E2	$356	ED	CBL091SF-S2	$293	ED	CBL091SF-D2	$409	ED	CBL091SF-B2	$411	ED
	50	15.2	CBL152SF-E2	$448	ED	CBL152SF-S2	$355	ED	CBL152SF-D2	$520	ED	CBL152SF-B2	$563	ED
	75	22.9	CBL229SF-E2	$554	ED	CBL229SF-S2	$433	ED	CBL229SF-D2	$622	ED	CBL229SF-B2	$661	ED
	100	30.5	CBL305SF-E2	$661	ED	CBL305SF-S2	$628	ED	CBL305SF-D2	$782	ED	CBL305SF-B2	$825	ED
			Encoder feedback threaded ** CE connector and HD D-type Male DB15			Resolver feedback threaded ** CE connector and HD D-type Male DB15			EnDat *** feedback threaded ** CE connector and HD D-type Male DB15					
For use with ACSM1	5	1.5	CBL015SF-E5	$326	ED	CBL015SF-R5	$299	ED	CBL015SF-D5	$304	ED	–	–	–
	10	3	CBL030SF-E5	$347	ED	CBL030SF-R5	$321	ED	CBL030SF-D5	$334	ED	–	–	–
	20	6.1	CBL061SF-E5	$390	ED	CBL061SF-R5	$364	ED	CBL061SF-D5	$388	ED	–	–	–
	30	9.1	CBL091SF-E5	$432	ED	CBL091SF-R5	$407	ED	CBL091SF-D5	$441	ED	–	–	–
	50	15.2	CBL152SF-E5	$517	ED	CBL152SF-R5	$494	ED	CBL152SF-D5	$548	ED	–	–	–
	75	22.9	CBL229SF-E5	$624	ED	CBL229SF-R5	$602	ED	CBL229SF-D5	$681	ED	–	–	–
	100	30.5	CBL305SF-E5	$730	ED	CBL305SF-R5	$710	ED	CBL305SF-D5	$814	ED	–	–	–

Shaded areas are stocked products.

NOTES:
*Cable assemblies include one connector on one end, flying leads other end
** Cable assemblies include two connectors as indicated.
*** BiSS cable for use with MicroFlex e100

1) BSM series require both power and feedback cables
2) CE style has shield tied to connector housing
3) Consult appropriate drive installation manual for cable length limitations

Motors
Feedback cable

Mating connectors

Termination	Motor type	Description	Number	List price	Mult. sym.
Motor power	BSM50/63/80/90/100	Mate assy power CE threaded connector (25 amp) (8 pin)	MCSPOW-08	$188	ED
	BSM132	Mate assy rotatable power (70 amp)		C/F	C/F
	SSBSM	Mate assy power stainless steel threaded connector (25 amp)	MCSPOW-08S	$429	ED
Strain relief	BSM90/100	PG21 strain relief	MCS-PG21	$84	ED
		PG29 strain relief	ASR24661	$73	ED
		Adapter (PG29 to PG21)	ASR24662	$19	ED
		M40 strain relief	MCS-M40	$73	ED
		Adapter (M40 to M25)	MCS-M40A	$19	ED
Resolver, BiSS, SSI, Hiperface, EnDat	BSM50/63/80/90/100/132	Mate assy power CE threaded connector (12 pin)	MCSRES-12	$144	ED
	SSBSM	Mate assy feedback threaded connector stainless steel	MCSRES-12S	$409	ED
	BSM - F-series	F-series resolver mate assy (14 pin)	MSCN	$78	ED
Encoder	BSM50/63/80/90/100/132	Mate assy power CE threaded connector (16 pin)	MCSENC-16	$158	ED
	SSBSM	Mate assy feedback threaded Ccnnector stainless steel	MCSENC-16S	$409	ED

Shaded areas are stocked products.

B S M [ ] [ ] [ ] [ ] – [ ] [ ] [ ] [ ] [ ] [ ] [ ]

Frame: 25, 33

Series: C

Motor size: 1, 2, 3, 4, 5, 6

Winding code: 177 etc.

Motor options

Description	Connections		
	Flying leads	Rotatable feedback connector and motor terminal box	Conduit Box
Motor (no shaft seal)	M	R	A
Motor and brake	N	S	B
Motor with shaft oil seal	O	T	C
Motor with brake and shaft oil seal	P	U	D

Feedback options

- H = Halls
- A = Resolver
- E = Incremental encoder w/ commutation (1000 ppr)
- F = Incremental encoder w/ commutation (2500 ppr)
- N = No feedback

Accessory options

- Q = Foot and round face
- C = Round face only
- F = Foot mount
- C1 = 33 frame only IEC flange MTG
- C2 = 33 frame only IEC face MTG

Adder for BSM25/33C options

Adder for options

	Code	Description	25 frame list price adder	33 frame list price adder
Motor options	A	Conduit Box	-30	-30
	B	Conduit Box and brake	120	293
	C	Conduit Box and oil seal	-9	2
	D	Conduit Box, brake, and oil seal	140	325
	M	Flying leads	STD	STD
	N	Flying leads and brake (24 V DC)	150	323
	O	Flying leads and oil seal	21	32
	P	Flying leads and brake and oil seal	170	355
	R	Rotatable feedback connector and motor power terminal box	13	13
	S	Rotatable feedback connector and motor power terminal box and brake	162	335
	T	Rotatable feedback connector and motor power terminal box and oil seal	33	45
	U	Rotatable feedback connector and motor power terminal box, brake and oil seal	182	367
Feedback options	H	Halls	STD	STD
	A	Resolver	106	106
	E	Inc encoder w/ halls 1000 ppr	226	226
	F	Inc encoder w/ halls 2500 ppr	226	226
	N	No feedback	-120	-120
	X	Other inc encoder w/ halls ppr	C/F	C/F
Mounting options	Q	Foot and round face	0	STD
	C	Round face only (inch) 42C 56C	STD	-11
	C1	33 frame only IEC flange mtg	N/A	71
	C2	33 frame only IEC face mtg	N/A	80
	F	Foot mount	14	15
	C/F	Custom face 42C	C/F	49

Motors
BSM round motor



BSM round 25 and 33-Series (hall feedback)

Output		Voltage	Speed	Continuous stall torque		Catalog number	NEMA	List price	Multiplier symbol
HP	kW	V DC	RPM	Lb-in	Nm				
1/4	0.18	320	1800	18.6	2.1	BSM25C-1177MHC	42	$733	E4
1/2	0.37	320	1800	23.0	2.6	BSM25C-2177MHC	42	$764	E4
1/2	0.37	320	1800	27.4	2.55	BSM33C-2177MHQ	56	$808	E4
1	0.75	320	1800	35.4	4	BSM33C-3177MHQ	56	$859	E4
1.5	1.13	320	1800	79.7	9	BSM33C-4177MHQ	56	$987	E4
2	1.5	320	1800	99.1	11.2	BSM33C-5177MHQ	56	$1,317	E4
3	2.2	320	1800	138.1	14.23	BSM33C-6177MHQ	56	$1,552	E4

Shaded areas are stocked products.

NOTES: Standard motors supplied with flying leads

DC servo motor identification matrix

M ☐☐☐ – ☐☐☐☐ – ☐ ☐ ☐ ☐ ☐

Configuration
- T = Tachometer
- E = Encoder
- B = Brake
- R = Resolver

Motor size

Winding code
- A
- B
- C
- D

Flange mounting
- C = Face
- L = Flange
- M = Metric – B14
- D = Metric – B5
- N = NEMA 56
  (Series 4000 & 4500 only)

Feedback
- Y = No encoder
- A = Encoder 500 line (MTE)
- B = Encoder 1000 line (MTE)
- D = Encoder 2000 line (MTE)
- E = Encoder 2500 line (MTE)
- A = Resolver (size 11)

Termination
- A = Cable lead wires
- B = 1/2 NPT hole
- C = MS connector

Accessory options
- N = None
- S = Shaft seal
- E = Environmentally sealed

NOTES: Some combinations are not available on all motor frame sizes. Contact the local Baldor District Office.

Motors
DC servo motors

			Motor series			
Motor option description			M2200	M3300	M4000	M4500
Winding option		Code				
Winding "A"		A	N/C	N/A	N/C	N/C
Winding "B"		B	STD	STD	STD	N/C
Winding "C"		C	N/A	N/C	N/A	STD
Winding "D"		D	N/A	N/C	N/A	N/C
Flange mounting		Code				
Square (inch)		L	55	STD	STD	N/A
Round (inch)		C	STD	48	72	N/A
NEMA 56 (inch)		N	N/A	N/A	127	195
Round face		T	N/A	N/A	N/A	STD
Round flange		H	N/A	N/A	N/A	195
Metric-B5 flange ***		D	64	64	239	195
Metric-B14 face ***		M	N/C	N/C	N/C	STD
Feedback option		Code				
Feedback (specify MTE, ME)						
Encoder	500ppr	A	851	851	851	1003
	1000ppr	B	851	851	851	1003
	2000 ppr	D	1,176	1,176	1,176	1,240
	2500 ppr	E	1,176	1,176	1,176	1,240
Mounting provisions only		Y	343	343	343	470
Feedback (specify MTR, MR)						
Resolver (size 11)		A	780	780	780	1,012
Mounting provisions only		Y	321	321	321	424
Termination option		Code				
Cable leadwires with strain relief		A	STD	STD	15	N/A
NPT hole 1/2 inch		B	N/A	N/A	STD	N/A
MS connector		C	103	103	103	STD
Junction box		D	N/A	N/A	103	107*
MS rear mounted connector			99	N/A	N/A	N/A
Accessory option		Code				
Standard, no options		N	STD	STD	NC	STD
Environmentally sealed (includes shaft seal)		E	N/A	66	STD	156
Shaft Oil Seal		S	N/A	48	56	56
Other option		Code				
Brake **		B	365	772	892	973
Thermostat adder		Custom	82	82	82	STD

NOTES:

STD = Standard

N/C = No additional change N/A = Not available

* For motor-tach unit only. Does not include encoder termination which exit via separate MS connector.

** Standard fail safe brake is 24 V DC

*** Includes chrome 12 pin connector on encoder feedback when ordered.

Motors
DC servo motors



Cont. stall torque Lb-in	Cont. stall torque N-m	Cont. stall amps	Nominal bus volts	Motor speed (RPM)	Catalog number	List price	Mult. sym.
1.9	0.21	2.1	50	3500	M-2240-ACYAN *	$458	E4
					MT-2240-ACYAN	$700	E4
		3.4	30	3000	M-2240-BCYAN	$458	E4
					MT-2240-BCYAN	$700	E4
					MTE-2240-BCBCN	$1,654	E4
3.1	0.35	3.4	50	3500	M-2250-ACYAN *	$520	E4
					MT-2250-ACYAN	$762	E4
					MT-2250-AMYAN	$762	E4
					MTE-2250-AMACN	$1,716	E4
		5.5	30	3000	M-2250-BCYAN	$520	E4
					MT-2250-BCYAN	$762	E4
					MT-2250-BCYCN	$864	E4
					MTE-2250-BCBCN	$1,716	E4
6.3	0.71	2.6	100	2800	M-3353-BLYAN *	$665	E4
					MT-3353-BLYAN	$862	E4
					MT-3353-BLYCN	$964	E4
		5.1	50	2000	M-3353-DLYAN	$665	E4
					MT-3353-DLYAN	$862	E4
8.8	0.99	3.8	100	2800	M-3358-BLYAN *	$699	E4
					MT-3358-BLYAN	$895	E4
		6	100	5000	M-3358-CLYAN	$699	E4
					MT-3358-CLYAN	$895	E4
11.3	1.2	4.9	100	2800	M-3363-BLYAN *	$766	E4
					MT-3363-BLYAN	$963	E4
					MT-3363-BCYAN	$1,010	E4
					MT-3363-BLYCN	$1,065	E4
					MT-3363-BDYCN	$1,129	E4
					MTE-3363-BCBCN	$1,964	E4
					MTE-3363-BLBCN	$1,917	E4
		6.3	100	4000	M-3363-CLYAN	$766	E4
					MT-3363-CLYAN	$963	E4
12	1.4	5.5	100	3000	M-4050-ALYBE *	$939	E4
					MT-4050-ALYBE	$1,136	E4
		7.9	100	4500	M-4050-BLYBE	$939	E4
					MT-4050-BLYBE	$1,136	E4
21	2.4	5	100	1500	M-4060-ALYBE *	$993	E4
					MT-4060-ALYBE	$1,190	E4
		7	100	2300	M-4060-BLYBE	$993	E4
					MT-4060-BLYBE	$1,190	E4

NOTES: *Base motor for pricing. See option chart for list price adders.

Shaded areas are stocked products.

Motors
DC servo motors



Cont. stall torque		Cont. stall amps	Nominal bus volts	Motor speed (RPM)	Catalog number	List price	Mult. sym.
Lb-in	N-m						
28	3.1	6.2	100	1500	M-4070-ALYBE *	$1,117	E4
					MT-4070-ALYBE	$1,314	E4
		9.2	100	2300	M-4070-BLYBE	$1,117	E4
					MT-4070-BLYBE	$1,314	E4
					MT-4070-BLYCE	$1,416	E4
					MTE-4070-BLABE	$2,165	E4
					MTE-4070-BLACE	$2,268	E4
					MTE-4070-BLBCE	$2,268	E4
40	4.5	9	100	1500	M-4090-ALYBE *	$1,209	E4
					MT-4090-ALYBE	$1,406	E4
		13	100	2300	M-4090-BLYBE	$1,209	E4
					MT-4090-BLYBE	$1,406	E4
					MT-4090-BLYCE	$1,508	E4
					MTE-4090-BLABE	$2,257	E4
					MTE-4090-BLACE	$2,360	E4
					MTE-4090-BLBCE	$2,360	E4
30	3.3	6.1	150	2200	M-4525-BTYCN *	$1,301	E4
					MT-4525-BTYCN	$1,498	E4
		9.2	150	3200	M-4525-CTYCN	$1,301	E4
					MT-4525-CTYCN	$1,498	E4
		12	150	4400	M-4525-DTYCN	$1,301	E4
					MT-4525-DTYCN	$1,498	E4
40	4.5	5.7	150	1400	M-4535-ATYCN *	$1,417	E4
					MT-4535-ATYCN	$1,614	E4
		8.3	150	2200	M-4535-BTYCN	$1,417	E4
					MT-4535-BTYCN	$1,614	E4
		11.2	150	2700	M-4535-CTYCN	$1,417	E4
					MT-4535-CTYCN	$1,614	E4
		16.4	150	4500	M-4535-DTYCN	$1,417	E4
					MT-4535-DTYCN	$1,614	E4
50	5.6	8	150	1700	M-4545-ATYCN *	$1,592	E4
					MT-4545-ATYCN	$1,789	E4
		10.6	150	2300	M-4545-BTYCN	$1,592	E4
					MT-4545-BTYCN	$1,789	E4
		15.7	150	3300	M-4545-CTYCN	$1,592	E4
					MT-4545-CTYCN	$1,789	E4
					MTE-4545-CTBCE	$2,948	E4
58	6.5	8.5	150	1500	M-4555-ATYCN *	$2,020	E4
					MT-4555-ATYCN	$2,217	E4
		12.1	150	2100	M-4555-BTYCN	$2,020	E4
					MT-4555-BTYCN	$2,217	E4
		15.3	150	2900	M-4555-CTYCN	$2,020	E4
					MT-4555-CTYCN	$2,217	E4

NOTES: * Base motor for pricing. See option chart for list price adders.

Shaded areas are stocked products.

Motors
DC servo motors

Cable assemblies

Any of these motor types...	Can use this cable assembly catalog cumber	Number of connector pins	Length		List price	Mult. sym.
			Meters	Feet		
M, MT-2200	CBL061SP-AF	6	6.1	20	$343	ED
M, MT, MTB, MB-3300						
MTE, ME, -2200	CBL061SC-GN	14	6.1	20	$433	ED
MTE, ME, MEB, -3300						
MEB, MTEB, -3300						
M, MT, MB, MTB-4050/4060	CBL061SP-AF	6	6.1	20	$343	ED
M, MT, MTB, MB-4070/4090	CBL061SP-BI	9	6.1	20	$449	ED
		9	9.1	30	$577	ED
MTE, ME, MTEB, MEB 4050/4060/4070/4090	CBL061SC-GP	16	6.1	20	$521	ED
	CBL091SC-GP	16	9.1	30	$638	ED
Motor power cable for: M, MT, MTB, MB-4500 *	CBL061SP-BI	9	6.1	20	$449	ED
	CBL091SP-BI	9	9.1	30	$577	ED
Encoder feedback for: MTE, ME, MEB, MTEB-4500 *	CBL030SF-BN	14	3	10	$302	ED
	CBL061SF-BN	14	6.1	20	$419	ED

NOTES: * M-4500 series with encoder feedback requires two cables; one for motor power and one for feedback.

Mating connectors

Any of these motor types...	Can use this mating connector description	Catalog number	List price	Mult. sym.
M, MT-2200	6 pin MS style connector	MSCF	$90	ED
M, MT, MTB, MB-3300				
MTE, ME, -2200	14 pin MS style connector	MSCN	$125	ED
MTE, ME, -3300				
MEB, MTEB, -3300				
M, MT, MB, MTB-4050/4060	6 pin MS style connector	MSCF	$90	ED
M-MT, MTB, MB-4070/4090	9 pin MS style connector	MSCI	$90	ED
MTE, ME, MTEB, MEB 4050/4060/4070/4090	16 pin MS style connector	MSCP	$90	ED
Motor connector for: M, MT, MTB, MB-4500 *	9 pin MS style connector	MSCI	$90	ED
Encoder feedback connector for: MTE, ME, MEB, MTEB-4500 *	14 pin MS style connector	MSCN	$125	ED

NOTES: * M-4500 series with encoder feedback requires two connectors; one for motor power and one for feedback.

Adapter plates

Description	Catalog number	List price	Mult. sym.
Adapter kit for M2200 to convert C face to flange mounting	22-M2200	$55	E4
Adapter kit for IM2200 to convert metric C face to flange mounting	22-IM2200	$55	E4

Shaded areas are stocked products.

Control panels (HMIs)

ABB control panels can be distinguished from their competitors by their easy yet comprehensive functionality, making clear and easy to understand tailor made operational information for production plants and machines available at a single touch. CP600 and CP400 control panels make machine operation efficient, predictable and user-friendly.

Build effective graphic interfaces with Panel Builder 600 - efficient representation of your information



Automation Builder
programming station

CP600

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Save engineering time by using Automation Builder for both your PLC and WebVisu



Automation Builder
programming station

AC500
with Webserver

CP600-WEB
with visualization for
AC500 web server

Connectivity with Drives directly without PLC



Automation Builder
programming station

CP600

Drives

Control panels (HMIs)
CP600 series



Type	CP620	CP630	CP635	CP651	CP661	CP665	CP676
Application	**control panels for PB610 Panel Builder 600 applications only** Features, supported from V1.90.0.975						
Type	**CP620-WEB**	**CP630-WEB**	**CP635-WEB**	**CP651-WEB**	**CP661-WEB**	**CP665-WEB**	**CP676-WEB**
Application	**control panels for visualization of AC500 web server applications, provided by AC500, AC500-eCo PLCs**						
Display							
Exact display size diameter	4.3" widescreen	5.7"	7" widescreen	10.4"	12.1"	13.3" widescreen	15"
Resolution	480 x 272 pixels	320 x 240 pixels	800 x 480 pixels	800 x 600 pixels	800 x 600 pixels	1280 x 800 pixels	1024 x 768 pixels
Display type, colors	TFT color, 64 k						
Touch screen material	glass covered by plastic film						
Touch screen type	analog restitive, 4 wires						
Backlight type, life	LED, 40 000 h typ at 25 °C						
Brightness	150 CD/m²	200 CD/m²	300 CD/m²				
Housing							
Protection class front, rear	IP66, IP20						
Front side material	Zamak			Aluminium			
Reverse side material	Zamak	Aluminium					
System resources							
Processor type	ARM Cortex A8: 600 MHz			ARM Cortex A8: 1 GHz			
Operating system, version	Microsoft Windows CE 6.0 Core						
User memory type, capacity	Flash disk, 128 MB			Flash disk, 256 MB			
RAM type, capacity	256 MB DDR						
Interfaces							
Ethernet ports, number, type	2 - 10/100 Mbit (with integrated Switch fuction)						
USB Host ports number, type	1 - ver. 2.0	2 - 1 ver. 2.0, 1 ver. 2.0 and ver. 1.1					
Serial ports number, type	1 - RS-232/-485/-422 software configurable						
Additional ports number, type	1 - Expansion slot for future modules	2 - Expansion slot for future modules					
Card slot number, type	1 - SD card slot						
Power supply voltage nominal, tolerance	24 V DC, 18...30 V DC						
Current consumption at nominal voltage	0.4 A	0.7 A	0.7 A	1.0 A	1.05 A	1.15 A	1.4 A
Battery type	Rechargeable Lithium battery, not user-replaceable						
Weight	0.95 kg	1.15 kg	1.1 kg	2.1 kg	2.8 kg	2.6 kg	3.8 kg
Faceplate dimensions (L x H)	149 mm x 109 mm	187 mm x 147 mm		287 mm x 232 mm	337 mm x 267 mm		392 mm x 307 mm
Cutout dimensions (L x H)	136 mm x 96 mm	176 mm x 136 mm		276 mm x 221 mm	326 mm x 256 mm		381 mm x 296 mm
Environmental conditions							
Operating temperature range	0...50 °C						
Operating humidity range	5...85 % relative humidity, non-condesing						
Storage temperature range	-20...+70 °C						
Storage humidity range	5...85 % relative humidity, non-condesing						
Approvals	See www.abb.com/plc						

Control panels (HMIs)
CP400 series





Type	CP415M	CP430B
Display size	3.5"	5.7"
Resolution	240 x 240 pixels	320 x 240 pixels
Display type	Touch Mono FSTN 16 grey	Touch 16 blue, STN
Brightness	90 cd/m²	110 cd/m²
Contrast adjustment	Via touch panel	Via touch panel
Back-light type	LED	CCFL
Back-light life	40 000 h	50 000 h
Touch screen (number of times)	> 1 million	> 1 million
Function keys / other keys	-	5 keys + 1 key menu
Application flash prom	4 MB	4 MB
RTC (rechargeable lithium battery)	●	●
Ethernet	-	-
Alarm management	●	●
Recipe management	-	-
Data/Recipe	-	-
Trends	●	●
Data storage (CF card)	-	-
Communication interface	1	2
USB 2.0	-	-
Printer port	-	-
Consumption	< 330 mA	< 840 mA
Dimensions L x H x W (external)	96 x 96 x 40.6 mm	195 x 145 x 60 mm
Weight	0.23 kg	0.81 kg
For the entire range		
RISC CPU	32 bit	
Graphics and text	●	
Macro and Ladder	●	
On-line and off-line simulation	●	
Real time clock	●	
Password protection	●	
Supply voltage	24 V DC ±15 %	
Class protection	IP65	
Approvals	RoHS, cUL	

CP600 series and CP400 series
Control panels (HMIs)



CP650

HMI panels

Resolution pixels	Display size	Type	Order code	Price	Weight (1 pce) kg
480 x 272	4.3"	CP620	1SAP520100R0001	$600	0.950
320 x 240	5.7"	CP630	1SAP530100R0001	$922	1.150
800 x 480	7.0"	CP635	1SAP535100R0001	$1,215	1.100
800 x 600	10.4"	CP651[1]	1SAP551100R0001	$2,224	2.100
800 x 600	12.1"	CP661[1]	1SAP561100R0001	$2,707	2.800
1280 x 800	13.3"	CP665[1]	1SAP565100R0001	$2,995	2.600
1024 x 768	15"	CP676[1]	1SAP576100R0001	$3,292	3.800
480 x 272	4.3"	CP620-WEB	1SAP520200R0001	$600	0.950
320 x 240	5.7"	CP630-WEB	1SAP530200R0001	$922	1.150
800 x 480	7.0"	CP635-WEB	1SAP535200R0001	$1,215	1.100
800 x 600	10.4"	CP651-WEB[1]	1SAP551200R0001	$2,224	2.100
800 x 600	12.1"	CP661-WEB[1]	1SAP561200R0001	$2,707	2.800
1280 x 800	13.3"	CP665-WEB[1]	1SAP565200R0001	$2,995	2.600
1024 x 768	15"	CP676-WEB[1]	1SAP576200R0001	$3,292	3.800

(1) Note new type code and part number(s) for CP6xxx screen sizes 10.4, 12,1, 13.3, and 15". These directly replace classic part numbers. See chart on next pag

Communication cables (connection control panel <-> PLC)

Description	Type	Order code	Price	Weight (1 pce) kg
Communication cable RS232: CP600-AC500	TK681	1SAP500981R0001	$60	0.130
Communication cable RS485: CP600-AC500-eCo	TK682	1SAP500982R0001	$60	0.130

Programming software

Description	Type	Order code	Price	Weight (1 pce) kg
Panel Builder 600 stand-alone engineering tool (1) (also available as part of the engineering suite Automation Builder)	PB610	1SAP500900R0001	$475	0.150

(1) Delivery includes the programming software and corresponding documentation for software and control panels on USB-ROM.



CP415

Control panels

Resolution pixels	Display	Type	Order code	Price	Weight (1 pce) kg
240 x 240	3.5", 16 grey levels	CP415M	1SBP260191R1001	$419	0.230
320 x 240	5.7", 16 blue levels	CP430B	1SBP260183R1001	$703	0.810

Programming cables

Plug on CP400 side	Description	Type	Order code	Price	Weight (1 pce) kg
Sub-D 9	Connection to COM1. Length: 4 m	TK401	1SBN260216R1001	$76	0.180
Sub-D 25	Connection to COM2. Length: 4 m	TK402	1SBN260217R1001	$76	0.230

Communication cables (connection control panel <-> PLC)

Plug on PLC side	PLC	Type	Order code	Price	Weight (1 pce) kg
Sub-D 9	AC500	TK405	1SBN260221R1001	$77	0.130
Sub-D 9	AC500-eCo	TK406	1SBN260224R1001	$77	0.130

Programming software

Description	Type	Order code	Price	Weight (1 pce) kg
Programming software for CP400 (1)	CP400Soft	1SBS260284R1001	$475	0.100

(1) Delivery includes the programming software and corresponding documentation on CD-ROM.

CP600 series control panels (HMIs)
Cross-reference

New order codes and new type designators for CP600 HMI Screens

Classic Screen Product Designation	Order code		New Screen (replacement) Product Designation	Order code
CP650 CLR TOUCH 10.4"	1SAP550100R0001	⇨	CP651 CLR TOUCH 10.4"	1SAP551100R0001
CP660 CLR TOUCH 12.1"	1SAP560100R0001	⇨	CP661 CLR TOUCH 12.1"	1SAP561100R0001
CP675 CLR TOUCH 15"	1SAP575100R0001	⇨	CP676 CLR TOUCH 15"	1SAP576100R0001
CP650-WEB CLR TOUCH 10.4"	1SAP550200R0001	⇨	CP651-WEB CLR TOUCH 10.4"	1SAP551200R0001
CP660-WEB CLR TOUCH 12.1"	1SAP560200R0001	⇨	CP661-WEB CLR TOUCH 12.1"	1SAP561200R0001
CP675-WEB CLR TOUCH 15"	1SAP575200R0001	⇨	CP676-WEB CLR TOUCH 15"	1SAP576200R0001

PLC AC500









PLC AC500
Automation and Motion Products - Automation Builder Software

Automation Builder is ABB's new engineering productivity suite for machine builders and system integrators.

Discover engineering productivity in engineering your discrete automation solutions.
Automation Builder is ABB's integrated programming and simulation environment for PLCs, safety, robots, motion, drives and control panels.

Automation Builder integrates the proven ABB tools Control Builder Plus, RobotStudio, Drive Manager, Mint WorkBench and Panel Builder.

Minimize your efforts for managing your project code and data with Automation Builder.
Improve your productivity through seamless engineering – common data storage, single project archive, time saving library blocks for device integration, and a common software installer.

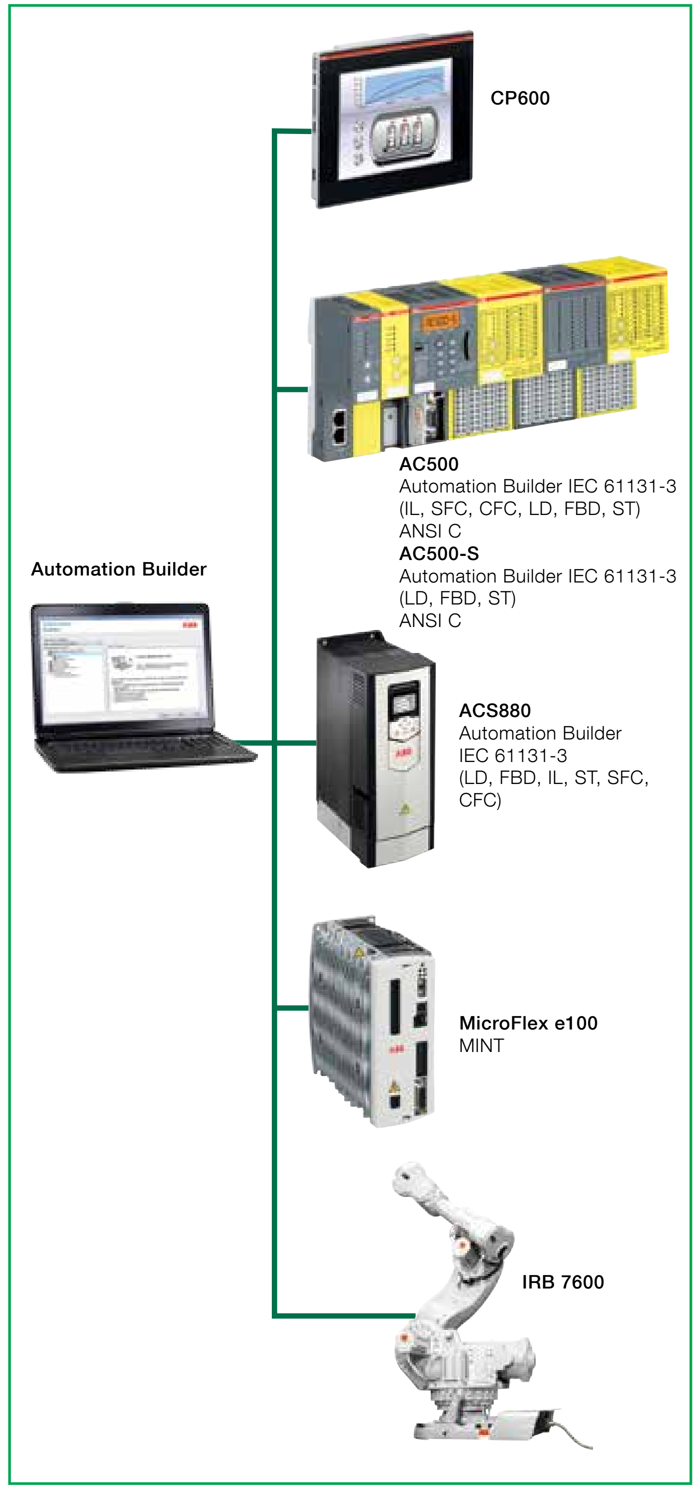
Reduce engineering effort and maintenance cost using easy to use libraries for applications in wind, water, solar, drives, motion, robotics and safety.

Benefit from the simplicity of IEC 61131-3, PLC open, ANSI C and MINT programming languages.

Speed up your project by the bulk data handling capabilities of Automation Builder.

Reduce downtime by simplified diagnostics and maintenance.
Automation Builder is this single software suite for you to configure and program various ABB controller families in a single project.

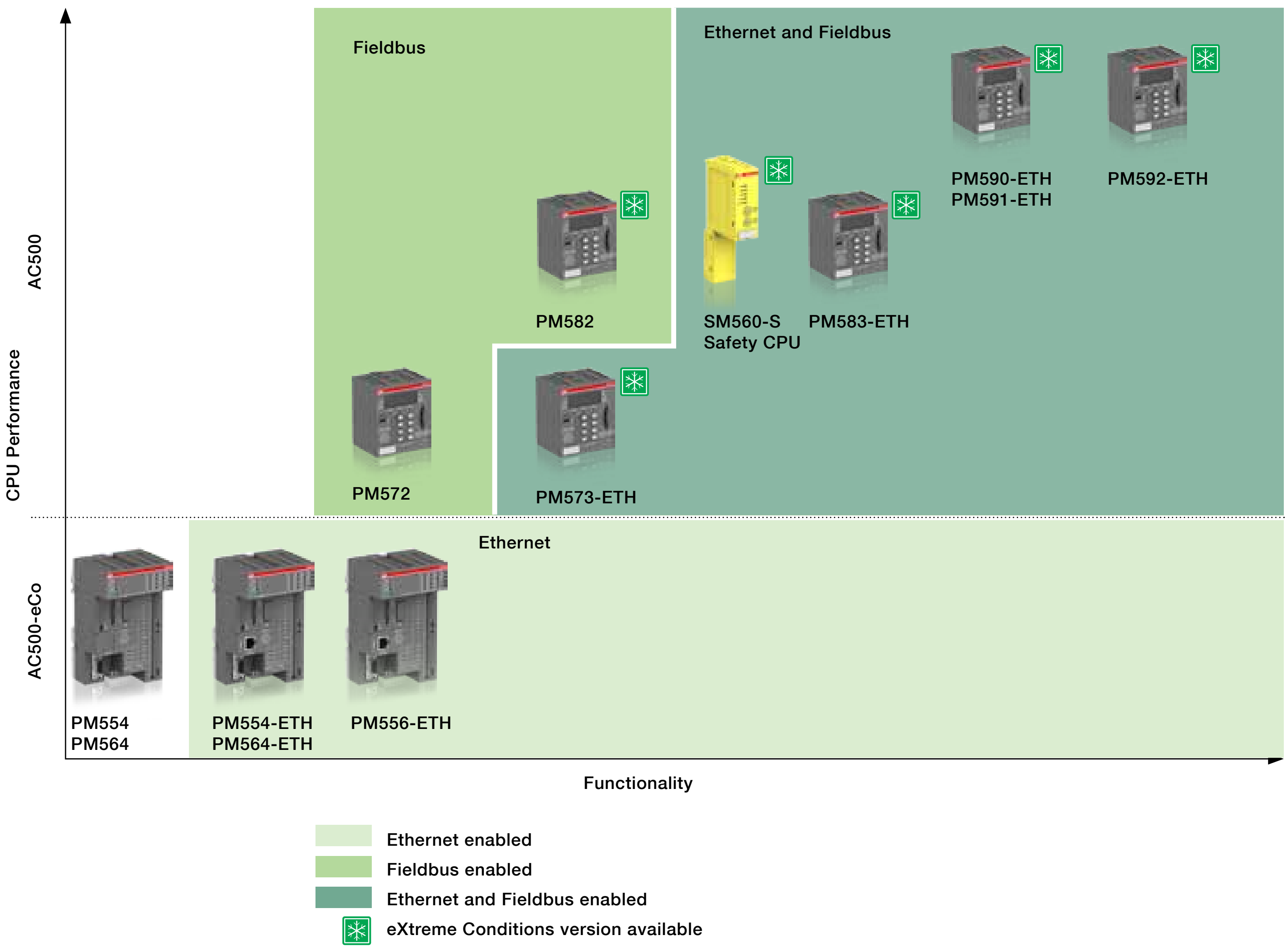
Secure and restore your applications in a consistent joint backup.



PLC AC500
At a glance

The AC500 Programmable Logic Controllers offers the latest technology enhancements with greater performance in a scalable package.

Standard industrial communications fieldbus, networks and protocols supported by the 'One Platform' solution enable the AC500 to be a very capable automation solution in demanding environment. The flexible scalable range of superior performance CPUs enables complete control of your application whenever and wherever you need it.



PLC AC500
Motion Control

Motion Control feature for AC500 and drives

AC500 is capable of highly flexible multi-axis control such as electronic gearing such as electronic line shaft and cam motion, with synchronization between virtual or physical axes. For example cam tables can be selected dynamically and motion can transition from cam to gearing during operation.

Motion profiles are updated on a flexible time base synchronized to the EtherCAT bus cycle time (1 msec as a default) and precision guaranteed by EtherCAT with virtually no jitter (< 1 µS). A new setpoint per axis is transmitted to the drives every cycle where a faster control loop is executed based on linear interpolation between two set points. These powerful capabilities together with sophisticated real-time control algorithms provide very smooth motion with minimal position (following) error.

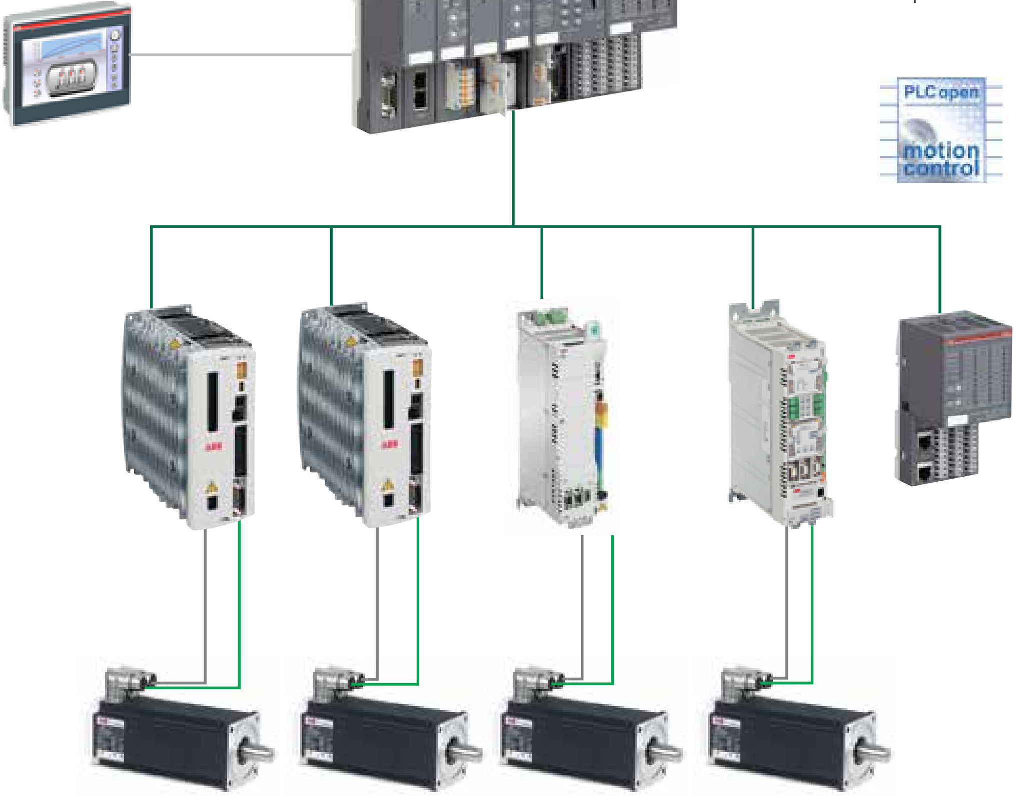
AC500 can be combined with products such as our CP600 HMIs, I/O devices, motion drives, AC motors, servo motors and linear motors to provide solutions for practically any application.

Advantages:

– Easy implementation of any required synchronization or relation between axes
– Several independent EtherCAT-Bus lines could be used from the same PLC
– Analog axes could be combined and synchronized with the digital EtherCAT axes
– External master axis information could be received
– Engineer can program motion functionality with IEC61131-3 languages
– Position control loops can be closed in the PLC or the drive with synchronized EtherCAT
– Flexibility to perform many different functions, such as cam, gearing, profiles, coordinated motion
– Interpolation modes for CAM and profiles such as Spline and polynomial interpolations
– High number of axis
– Capability to use customer kinematics

Ideal partner to ABB AC500 PLC

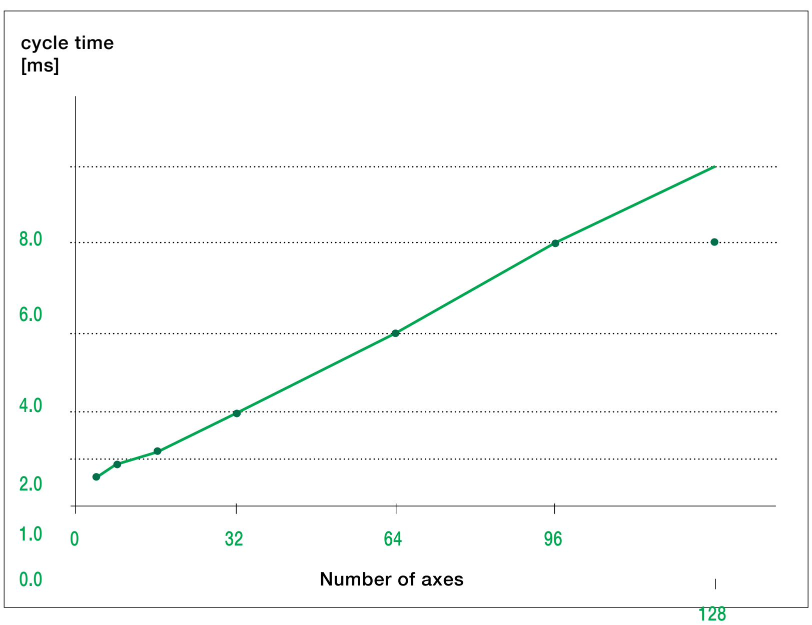
– EtherCAT master
– IEC61131 programming
– PLCopen motion



PLC AC500
Motion Control



- Most comprehensive PLCopen motion function block libraries
- Convenient interface functions for ABB drives are available
- Display and manipulation of variables simplifies development and testing
- Scalable CPU range adapts from small to large axis count applications.



Motion control performance of AC500's PM590-ETH

NOTES: Contact factory for an updated Axes vs. Cycle time and required PLC CPU, per application.

Administrative	MC_Power
	MC_ReadStatus
	MC_ReadAxisError
	MC_ReadParameter
	MC_ReadBoolParameter
	MC_WriteParameter
	MC_WriteBoolParameter
	MC_ReadActualPosition
	MC_Reset
	MC_ReadActualVelocity
	MC_SetOverride
	MC_SetPosition
	MC_CamTableSelect
Single axis	MC_MoveAbsolute
	MC_MoveRelative
	MC_MoveAdditive
	MC_MoveSuperimposed
	MC_MoveVelocity
	MC_Stop
	MC_PositionProfile
	MC_VelocityProfile
	MC_AccelerationProfile
	MC_MoveContinuousAbsolute
	MC_MoveContinuousRelative
	MC_Halt
Multiple axis	MC_CamIn
	MC_CamOut
	MC_GearIn
	MC_GearInPos
	MC_GearOut
	MC_PhasingAbsolute
	MC_PhasingRelative
Homing	MC_Home
	MC_StepAbsSwitch
	MC_StepLimitSwitch
	MC_StepRefPulse
	MC_StepDirect
ABB specific	MCA_Home
	MCA_Indexing
	MCA_JogAxis
	MCA_MoveByExternalReference
	MCA_MoveVelocityContinuous
	MCA_Power
	MCA_ReadParameterList
	MCA_WriteParameterList

Overview of implemented blocks for Motion Control

PLC AC500
AC500 system overview

AC500, superior local extension capabilities for I/O communication and best-in-class CPU functionality and industry leading performance.



1 AC500 CPUs can be locally expanded with up to 10 I/O modules (Standard S500 and S500-eCo I/O modules can be mixed).



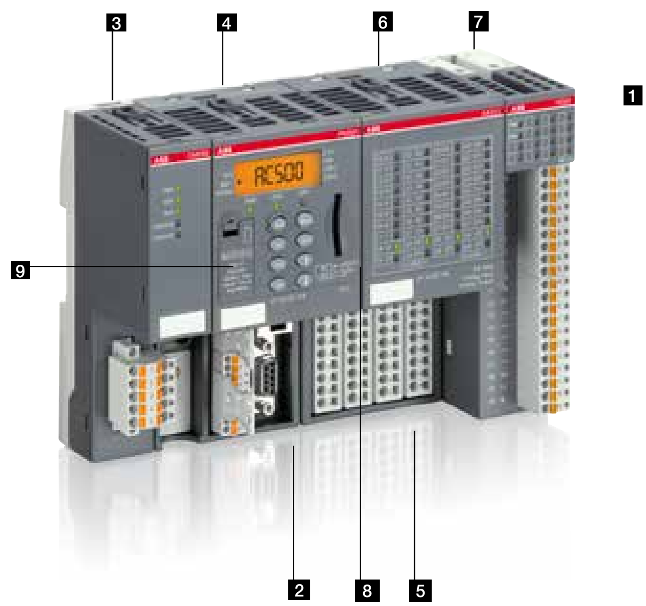
2 Terminal base

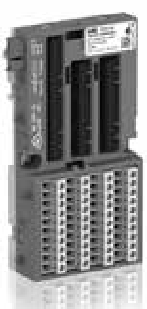


3 **Communication module**
Up to 4 modules in numerous combinations to communicate with nearly everything



4 CPU module





5 S500 Terminal unit



6 S500 I/O module



7 S500-eCo I/O module



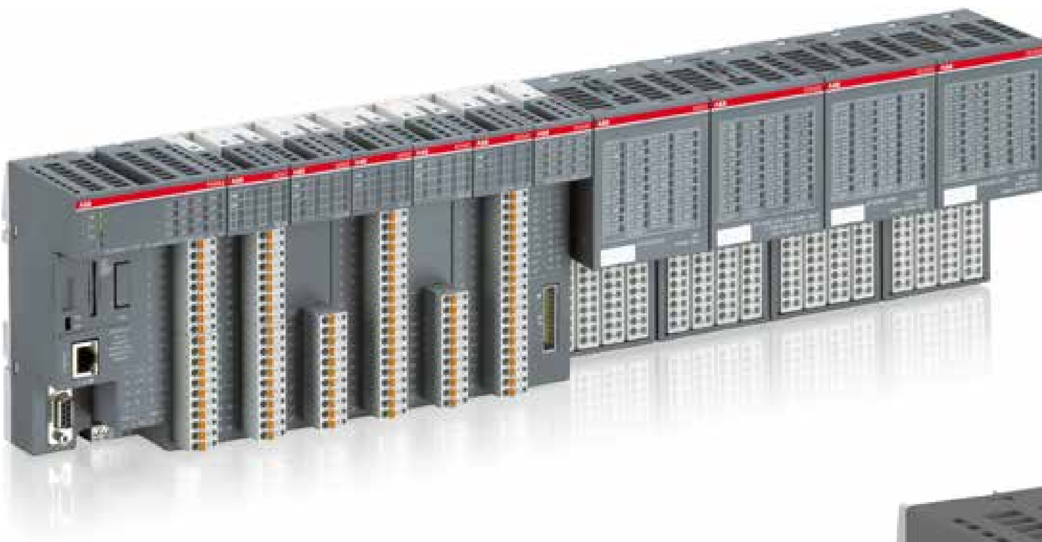
8 SD-card



9 Battery

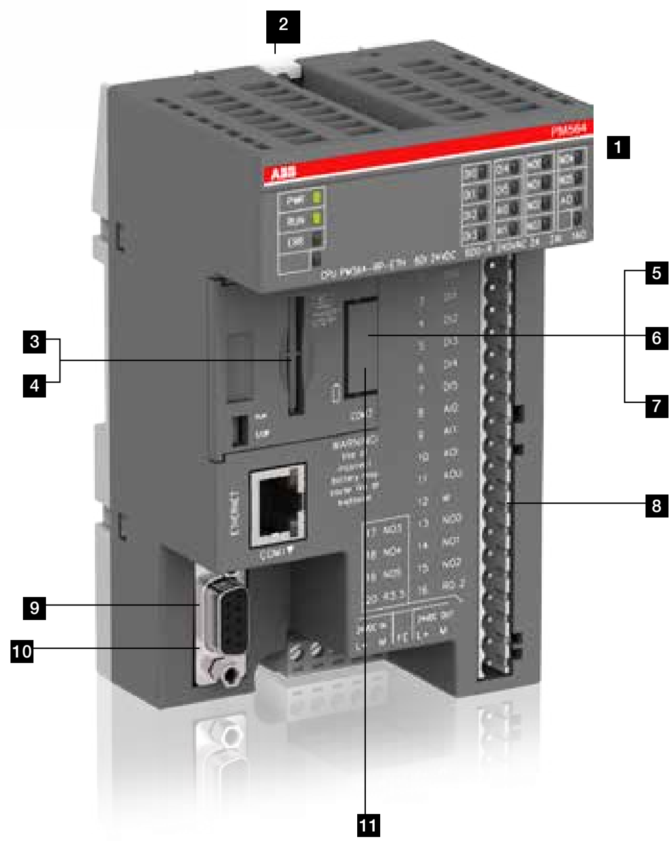
PLC AC500
AC500-eCo system overview

AC500-eCo CPUs can be locally expanded with up to 10 I/O modules. New AC500-eCo CPUs for use with pluggable terminal blocks available.



1 AC500-eCo CPUs can be locally expanded with up to 10 I/O modules (Standard S500 and S500-eCo I/O modules can be mixed).

AC500-eCo Starter Kits Available!





2 Wall mounting



3 SD-card adapter



5 Adapter with realtime clock

6 Adapter with COM2 & realtime clock



4 SD-card



7 Adapter with COM2



8 Terminal blocks



9 RS485 isolator for COM1



10 COM1 USB

11 COM2 USB programming cable

PLC AC500

PLC AC500-XC for extreme conditions; ruggedized variants when interacting with the elements in wind, solar, water, cranes, robotics, marine, and other harsh environment applications



Operating in wet environment
- Increased resistance to 100% humidity with condensation.

Extended operating temperature
- -40°C up to +70°C operating temperature

Use at high altitudes
- Operating altitude up to 4,000 m above sea level

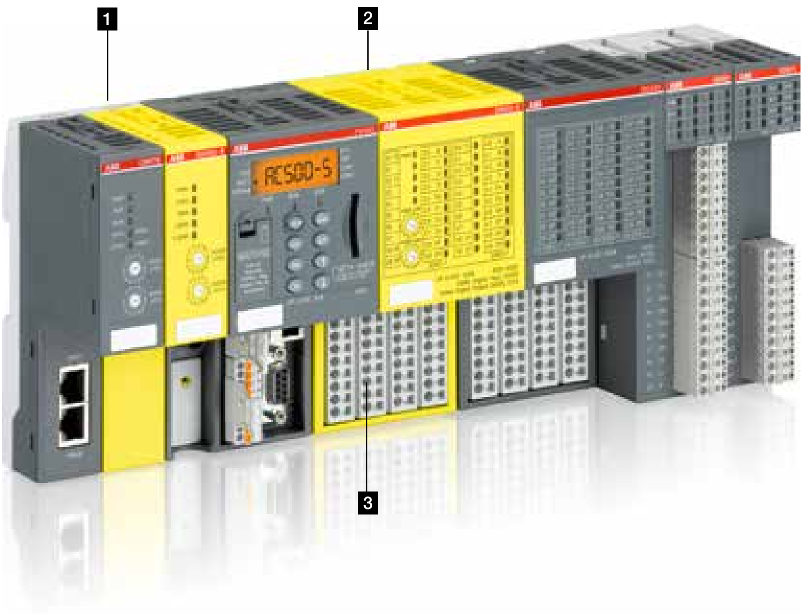
Extended immunity to hazardous gases and salt mist
- G3, 3C2 immunity
- Salt mist EN 60068-2-52 / EN 60068-2-11

Extended immunity to vibration
- 4 g root mean square random vibration up to 500 Hz
- 2 g sinusoidal vibration up to 500 Hz

Extended EMC requirements
- EN 61000-4-5 surge immunity test
- EN 61000-4-4 transient / burst immunity test

PLC AC500

AC500-S Safety PLC is the answer for complex machine safety applications that need the highest level of reliability, efficiency and flexibility.



The safety PLC is aimed at protecting people, machines or processes, environment and investment. An ideal choice of safety PLC that is well suited for OEM equipment, wind turbine, crane, hoist and robot applications.



1 Safety CPU



2 S500 Safety I/O module



3 Safety terminal unit

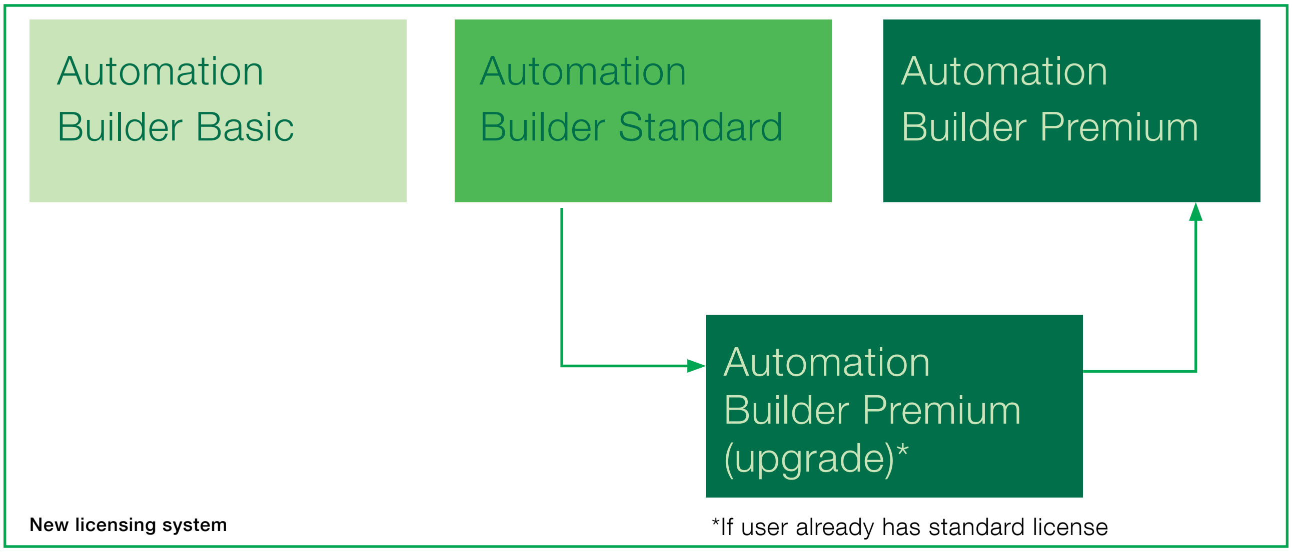
More integration and easier programming

Featuring a consistent look and feel across the entire range, the AC500 is the PLC of choice for applications where uncompromising flexibility, integration and communication are a must. With Automation Builder, you easily integrate your safety application with your ABB PLC, Safety, Drives, Motion, HMI and Robotics. Automation Builder is simple to use through the integrated standard languages like IEC 61131-3, letting you get up and running in no time at all. And not only that: Clear configuration of the overall system with one single tool ensures optimal transparency.

With the AC500-S Safety PLC, the latest addition to the AC500 family, ABB takes the stress out of managing even the most complex safety applications. Support for safety-relevant calculations such as COS, SIN, TAN, ASIN, ACOS and LOG makes the AC500-S ideal for applications in fields like crane engineering, wind power generation, robotics and hoist technology. Plus it gives you greater flexibility and simplicity thanks to safety programming under Structured Text (ST) as well as full support for Function Block Diagram (FBD) and Ladder Diagram (LD). Also available in extreme conditions version.

Automation Builder 1.1 New licensing (early Q1 2015)
Integrated engineering suite - How to purchase

Step 1
Download Automation Builder (www.abb.com/automationbuilder), then order the desired license from your ABB channel partner.



Step 2 (optional)
The USB key will allow license to be moved between two or more PCs. Order the USB key if you do not want the license locked to your PC.



Step 3 (optional)
Order one or more ABB AC500 software libraries if needed for application.

- AC500 Motion Library
- AC500 Safety Library
- AC500 Solar Library
- AC500 Water Library

NOTE: Licensing has not changed for these. Software delivery on the USB stick with license registration card included.

Step 4 (optional)
Obtain additional licenses if needed for application.

- Drive Composer Pro*
- Robot Studio Premium*

* Different licensing system. Please see Drive Channel Partner or Robotics Channel Partner for details.

PLC AC500
Automation Builder Integrated Engineering Suite



Automation Builder



Solar library



Water library



Motion control library



Temperature control library
(second half 2015)

Automation Builder Engineering Suite Ver 1.1 and up (early Q1 2015)

- Engineering Productivity and Maintenance for PLCs, safety, robots, motion, drives and control panels.
- Supports IEC61131-3, CFC, C/ C++. Optional: MINT, Rapid for motion and robotics applications.
- For all AC500 CPUs
- Single-seat license (Please consult factory for multi-seat licenses)

For	Description	Type	Order code	Price	Weight (1 pce) kg
AC500 w/o fieldbus and safety	Automation Builder Basic (1)	-	-	-	-
AC500, drives, motion, panel	Automation Builder Standard (4)	DM-TOOL	1SAP193000R0101	$895	0.005
	Automation Builder Premium (4)	DM-PREM	1SAP193005R0101	$2,185	0.005
	Automation Builder Premium Upgrade (2) (4)	DM-PREM-UPGR	1SAP193004R0101	$1,290	0.005
	USB Key (optional) (3)	DM-KEY	1SAP193600R0001	$140	0.010

(1) No cost license
(2) Purchase this option to upgrade a Standard version to a Premium version
(3) Order USB key if you do not want license locked to a single PC
(4) Automation Builder V1.0 1SAP193000R0001 can still be ordered until these are released in Q1 2015. After release of V1.1, V1.0 will no longer be availablle for purchase.

Libraries

For	Description	Type	Order code	Price	Weight (1 pce) kg
all AC500 CPUs	Solar library (4)	PS562-SOLAR	1SAP195000R0001	$740	0.300
all AC500 CPUs	Water library (4)	PS563-WATER	1SAP195200R0001	$1,108	0.300
all AC500 CPUs	Motion Control library, Extended (4)	PS552-MC-E	1SAP192100R0002	$676	0.300

(4) Delivery on USB stick that includes: library, single license code and documentation.

Further application libraries and examples:

Please check and download further libraries and examples from: www.abb.com/plc

Using CODESYS Visualizations on Stand Alone PC

For	Description	Type	Order code	Price	Weight (1 pce) kg
all AC500 CPUs	License for runtime visualization package. For installation and visualization of images created with the Automation Builder Engineering Suite (2)(3)	PS541-HMI (1)	1SAP190500R0001	$423	0.300

(1) This package allows granting the license for the software. To install the HMI software, Automation Builder must be purchased separately.
(2) Delivery includes license code and documentation.
(3) The PS541-HMI package is NOT required for programming CP600 and CP400 touch screens, or for using PLC Webserver.

Automation Builder
Software features (ver 1.1 and up)



	Automation Builder Basic	Automation Builder Standard	Automation Builder Premium
Description	Basic system engineering for FREE	Integrated engineering of complex systems	Productivity and Collaboration for System Integrators and Machine Builders
Features	- AC500-eCo, AC500 with local I/O, TCP/IP, Modbus, CS-31, IEC60870-5 - All 5 IEC 61131-3 languages IL, LD, FBD, SFC, ST, plus CFC - Drive application programming (IEC 61131-3) - Mint WorkBench for motion applications - RobotStudio Basic - PLC firmware update, download and online change to single or several PLCs - PLC simulation and debugging - Language packs available for EN, DE, ES, FR, CN	Automation Builder Basic features plus - Integrated engineering for Panel, Drive, Motion, Robotics - AC500 PROFIBUS, PROFINET, EtherCAT, CAN - AC500 Safety (1) - Drive Manager	Automation Builder Standard features plus - C/ C++ application programming interface - EPLAN Interface AC500/ AC500-eCo - Advanced CSV data exchange - Project compare"
Minimum PC requirements	1 GHz, 3 GB RAM, 10 GB free disk space		
Recommended Operating Systems	Windows 7 32/64-bit, Windows 8.1 32/64-bit (version 1.1 and up)		
Target Systems	- PLC AC500-eCo, AC500, AC500-XC, ACS880, DCT880 - Robot Controller IRC5 - NextMove motion controllers, MicroFlex and MotiFlex drives	- AC500-S (1), - Control Panel CP600 and CP600-WEB	
Supported devices on PLC fieldbus	-	- All I/O and fieldbus modules for AC500 family - ACS355, ACQ810, ACS850, ACS880, DCT880, ACSM1, MicroFlex e150, Motiflex e180, IRC5 on selected fieldbuses	
Included components	- IEC61131-3 Editor - PS553-DRIVES drive library - RobotStudio (Basic license) - Mint WorkBench - OPC server and clients, service tool, PLC gateway, IP configuration and visualization	Automation Builder Basic plus - Drive Manager - Panel Builder 600	Automation Builder Standard plus - GNU compiler, C/ C++ programming (2) - EPLAN interface
Additional options	- RobotStudio Premium license - Panel Builder 600 license - Drive composer pro license	- PS501-S safety library - PS541-HMI visualization - PS552-MC-E PLCopen® motion library	

(1) requires PS501-S safety library.
(2) for AC500 and AC500-XC targets.

PLC AC500
AC500 and AC500-eCo PLC CPUs



PM582

AC500 CPUs

- 2 internal serial interfaces, RS232 / RS485 configurable
- Display and 8 function keys for diagnosis and status
- Centrally expandable with up to 10 I/O modules, 320 I/Os (S500 and/or S500-eCo modules allowed)
- Simultaneous operation of up to 4 external communication modules in any desired combination
- Optional SD card for data storage and program backup
- Can also be used as slave on PROFIBUS® DP, DeviceNet or CANopen® via FieldBusPlug, CANopen® also using CM588 slave communication module
- Ethernet version provides web server and IEC 60870-5-104 remote control protocol.

Program memory kB	Cycle time in µs per instruction min. Bit/Word/Float. point	Integrated communication	Type	Order code	Price	Weight (1 pce) kg
128	0.06 / 0.09 / 0.7	2 x serial	PM572	1SAP130200R0200	$474	0.135
512	0.06 / 0.09 / 0.7	Ethernet (2), 2 x serial	PM573-ETH (1)	1SAP130300R0271	$1,443	0.150
512	0.05 / 0.06 / 0.5	2 x serial	PM582	1SAP140200R0201	$787	0.135
1024	0.05 / 0.06 / 0.5	Ethernet (2), 2 x serial	PM583-ETH (1)	1SAP140300R0271	$2,192	0.150
2048	0.002 / 0.004 / 0.004	Ethernet (2), 2 x serial	PM590-ETH (1)	1SAP150000R0271	$3,667	0.150
4096	0.002 / 0.004 / 0.004	Ethernet (2), 2 x serial	PM591-ETH (1)	1SAP150100R0271	$5,085	0.150
4096	0.002 / 0.004 / 0.004	Ethernet (2), 2 x serial	PM592-ETH (1)(3)	1SAP150200R0271	$5,787	0.150

(1) Ethernet communication.
(2) Provides integrated web server and IEC 60870-5-104 remote control protocol.
(3) Provides integrated 4 GB flashdisk for user data storage and data logging.



PM590

AC500 CPUs for extreme conditions -XC

Program memory kB	Cycle time in µs per instruction min. Bit/Word/Float. point	Integrated communication	Type	Order code	Price	Weight (1 pce) kg
512	0.06 / 0.09 / 0.7	Ethernet (2), 2 x serial	PM573-ETH-XC (1)	1SAP330300R0271	$1,910	0.150
512	0.05 / 0.06 / 0.5	2 x serial	PM582-XC	1SAP340200R0201	$1,068	0.135
1024	0.05 / 0.06 / 0.5	Ethernet (2), 2 x serial	PM583-ETH-XC (1)	1SAP340300R0271	$2,740	0.150
4096	0.002 / 0.004 / 0.004	Ethernet (2), 2 x serial	PM591-ETH-XC (1)	1SAP350100R0271	$6,558	0.150
4096	0.002 / 0.004 / 0.004	Ethernet (2), 2 x serial	PM592-ETH-XC (1)(3)	1SAP350200R0271	$7,233	0.150

(1) Ethernet communication.
(2) Provides integrated web server and IEC 60870-5-104 remote control protocol.
(3) Provides integrated 4 GB flashdisk for user data storage.



PM592

AC500-eCo CPUs

- 1 RS485 serial interface (2nd is optional)
- Centrally expandable with up to 10 I/O modules (standard S500 and/or S500-eCo modules can be mixed)
- Optional SD card adapter for data storage and program backup
- Variants with integrated Ethernet (Ethernet includes web server)
- Minimum cycle time per instruction: Bit 0.08 µs, Word 0.1 µs, Float-point 1.2 µs.
- Relay outputs on the -R models. Relays up to 2A each or 6A per group (total current) at 120 VAC / or 24 VDC



PM554

Program memory kB	Onboard I/Os DI/DO/AI/AO	Relay / Transistor outputs	Integrated communication	Power supply	Type	Order code	Price	Weight (1 pce) kg
PM554: digital I/Os								
128	8 / 6 / – / –	Transistor	–	24 V DC	PM554-TP	1SAP120600R0001	$241	0.300
128	8 / 6 / – / –	Relay	–	24 V DC	PM554-RP	1SAP120700R0001	$241	0.400
128	8 / 6 / – / –	Relay	–	100-240 V AC	PM554-RP-AC	1SAP120800R0001	$262	0.400
128	8 / 6 / – / –	Transistor	Ethernet	24 V DC	PM554-TP-ETH	1SAP120600R0071	$418	0.400
PM556: digital I/Os, 512 kB program memory								
512	8 / 6 / – / –	Transistor	Ethernet	24 V DC	PM556-TP-ETH	1SAP121200R0071	$673	0.400
PM564: digital and analog I/Os (1)								
128	6 / 6 / 2 / 1	Transistor	–	24 V DC	PM564-TP	1SAP120900R0001	$301	0.300
128	6 / 6 / 2 / 1	Relay	–	24 V DC	PM564-RP	1SAP121000R0001	$301	0.400
128	6 / 6 / 2 / 1	Relay	–	100-240 V AC	PM564-RP-AC	1SAP121100R0001	$314	0.400
128	6 / 6 / 2 / 1	Transistor	Ethernet	24 V DC	PM564-TP-ETH	1SAP120900R0071	$479	0.300
128	6 / 6 / 2 / 1	Relay	Ethernet	24 V DC	PM564-RP-ETH	1SAP121000R0071	$479	0.400
128	6 / 6 / 2 / 1	Relay	Ethernet	100-240 V AC	PM564-RP-ETH-AC	1SAP121100R0071	$491	0.400



PM564-T-ETH

Terminal blocks (9 or 11 poles) are necessary for each AC500-eCo I/O. They are delivered separately.
(1) All analog inputs on PM564 can be configured as digital inputs.All analog inputs on AC500 CPU PM564 can be configured as digital inputs. Analog inputs are 0-10 VDC only. Analog out 4-20 mA.

PLC AC500
AC500 CPU terminal base and AC500-eCo CPU terminals



TB511

Terminal base

- For mounting and connection of the CPUs and communication modules
- 1 to 4 plug-in communication modules
- Connection for communication coupler integrated in the CPU
- I/O interface for direct connection of up to 10 expansion modules
- Fieldbus-neutral FieldBusPlug-Slave interface
- Connection COM1: 9-pole pluggable terminal block
- Connection COM2: 9-pole Sub-D (socket).

Number of coupler slots	Connection for coupler integrated in the CPU	Type	Order code	Price	Weight (1 pce) kg
1	Ethernet RJ45	TB511-ETH	1SAP111100R0270	$225	0.215
2	Ethernet RJ45	TB521-ETH	1SAP112100R0270	$271	0.215
4	Ethernet RJ45	TB541-ETH	1SAP114100R0270	$298	0.215

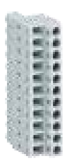
NOTES: These TBs are compatible with previous AC500 CPU versions (R01xx) and new ones (R02xx).

Terminal base for extreme conditions -XC

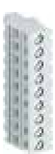
Number of coupler slots	Connection for coupler integrated in the CPU	Type	Order code	Price	Weight (1 pce) kg
1	Ethernet RJ45	TB511-ETH-XC	1SAP311100R0270	$302	0.215
2	Ethernet RJ45	TB521-ETH-XC	1SAP312100R0270	$370	0.215
4	Ethernet RJ45	TB421-ETH-XC	1SAP314100R0270	$401	0.215



TA565-9



TA564-11



TA563-9

Terminal blocks for S500-eCo I/O modules and AC500-eCo CPUs

Number of poles	Connection type	Cable entry	Type	Order code	Price	Weight (1 pce) kg
9	Screw	Side	TA563-9	1TNE968901R3101	$11	0.017
11	Screw	Side	TA563-11	1TNE968901R3102	$13	0.020
9	Screw	Front	TA564-9	1TNE968901R3103	$11	0.026
11	Screw	Front	TA564-11	1TNE968901R3104	$13	0.035
9	Spring	Front	TA565-9	1TNE968901R3105	$11	0.016
11	Spring	Front	TA565-11	1TNE968901R3106	$13	0.020

⚠ Only ABB terminal blocks must be used with AC500-eCo.
Sales package for these terminal blocks = 6.

PLC AC500
AC500 communication modules



CM578-CN

Communication modules

Protocol	Connections	Type	Order code	Price	Weight (1 pce) kg
PROFIBUS® DP V0/V1 master	Sub-D socket 9 poles	CM572-DP	1SAP170200R0001	$1,034	0.115
Ethernet (TCP/IP, UDP/IP, Modbus® TCP)	2 x RJ45 - integrated switch	CM597-ETH (1)	1SAP173700R0001	$1,034	0.115
CANopen® master	Terminal block 5 poles spring	CM578-CN	1SAP170800R0001	$1,034	0.115
CANopen® slave	Terminal block 2 x 5 poles spring	CM588-CN	1SAP172800R0001	$677	0.115
PROFINET® I/O RT controller	2 x RJ45 - integrated switch	CM579-PNIO (2)	1SAP170901R0101	$1,250	0.115
EtherCAT® master	2 x RJ45	CM579-ETHCAT	1SAP170902R0001	$1,250	0.115
Serial + co-processor	2 x RS-232/485 on spring terminal blocks	CM574-RS	1SAP170400R0201	$837	0.115
Serial RCOM	2 x RS-232/485 (1 x RCOM/1 x Console)	CM574-RCOM	1SAP170401R0201	$1,115	0.115

(1) CM597-ETH Replaces old type CM577-ETH
(2)Note new part number for CM579-PNIO



CM588-CN

Communication modules for extreme conditions - XC

Protocol	Connections	Type	Order code	Price	Weight (1 pce) kg
PROFIBUS® DP V0/V1 master	Sub-D socket 9 poles	CM572-DP-XC	1SAP370200R0001	$1,283	0.115
Ethernet (TCP/IP, UDP/IP, Modbus TCP)	2 x RJ45 - integrated switch	CM597-ETH-XC (3)	1SAP373700R0001	$1,283	0.115
CANopen® master	Terminal block 5 poles spring	CM578-CN-XC	1SAP370800R0001	$1,283	0.115
CANopen® slave	Terminal block 2 x 5 poles spring	CM588-CN-XC	1SAP372800R0001	$817	0.115
PROFINET® I/O RT controller	2 x RJ45 - integrated switch	CM579-PNIO-XC (4)	1SAP370901R0101	$1,634	0.115

(3) CM597-ETH-XC Replaces old type CM577-ETH-XC
(4) Note new part number for CM579-PNIO-XC



CM579-PNIO



CM574-RS

PLC AC500
AC500 digital I/O modules



DC532

S500 I/O modules

- For central expansion of the AC500 or AC500-eCo CPUs
- For decentralized expansion in combination with communication interface modules on CS31, PROFINET® IO, PROFIBUS® DP, CANopen® and also DC505-FBP (2)(3) modules
- DC: Channels can be configured individually as inputs or outputs
- Plug-in electronic modules, terminal unit required (refer to table below).

Digital I/O

Number of DI/DO/DC	Input signal	Output type	Output signal	Terminal units Screw / Spring	Type	Order code	Price	Weight (1 pce) kg
32 / – / –	24 V DC	–	–	TU515 / TU516	DI524	1SAP240000R0001	$354	0.200
– / – / 16	24 V DC	Transistor	24 V DC, 0.5 A	TU515 / TU516	DC522	1SAP240600R0001	$363	0.200
– / – / 24	24 V DC	Transistor	24 V DC, 0.5 A	TU515 / TU516	DC523	1SAP240500R0001	$437	0.200
16 / – / 16	24 V DC	Transistor	24 V DC, 0.5 A	TU515 / TU516	DC532	1SAP240100R0001	$485	0.200
8 / 8 / –	24 V DC	Relay	230 V AC, 3 A (1)	TU531 / TU532	DX522	1SAP245200R0001	$299	0.300
8 / 4 / –	230 V AC	Relay	230 V AC, 3 A (1)	TU531 / TU532	DX531	1SAP245000R0001	$244	0.300
– / 32 / –	24 V DC	Transistor	24 V DC, 0.5 A	TU515 / TU516	DO524	1SAP240700R0001	$464	0.200

(1) Relay outputs, changeover contacts.
(2) Please refer to the FieldBusPlug catalog for information about FBP. The currently available FBP Fieldbus plugs are listed in the catalog 2CDC190022D0203.
(3) DO524 cannot be used with DC505-FBP and FieldBusPlug.



DI524

Product for extreme conditions

Number of DI/DO/DC	Input signal	Output type	Output signal	Terminal units	Type	Order code	Price	Weight (1 pce) kg
32 / - / -	24 V DC	-	-	TU516-XC	DI524-XC	1SAP440000R0001	$542	0.200
- / - / 16	24 V DC	Transistor	24 V DC, 0.5 A	TU516-XC	DC522-XC	1SAP440600R0001	$515	0.200
- / - / 24	24 V DC	Transistor	24 V DC, 0.5 A	TU516-XC	DC523-XC	1SAP440500R0001	$638	0.200
16 / - / 16	24 V DC	Transistor	24 V DC, 0.5 A	TU516-XC	DC532-XC	1SAP440100R0001	$668	0.200
- / 32 / -	24 V DC	Transistor	24 V DC, 0.5 A	TU516-XC	DO524-XC	1SAP440700R0001	$647	0.200
8 / 8 / -	24 V DC	Relay	230 V AC, 3 A (1)	TU532-XC	DX522-XC	1SAP445200R0001	$401	0.200

(1) Relay outputs, changeover contacts.



DO572

S500-eCo I/O modules

- For central expansion of the AC500 or AC500-eCo CPUs
- For decentralized expansion in combination with communication interface module DC551-CS31, PROFINET® CI50x modules, CI592-CS31, PROFIBUS® modules CI54x, and CANopen® modules CI58x (not usable with DC505-FBP module and CI590-CS31-HA).

Digital I/O

- DC: Channels can be configured individually as inputs or outputs.

Number of DI/DO/DC	Input signal	Output type	Output signal	Terminal block required 9 poles	11 poles	Type	Order code	Price	Weight (1 pce) kg
8 / – / –	24 V DC	–	–	1	–	DI561	1TNE968902R2101	$88	0.12
16 / – / –	24 V DC	–	–	1	1	DI562	1TNE968902R2102	$129	0.12
8 / – / –	100-240 V AC	–	–	1	1	DI571	1TNE968902R2103	$110	0.15
– / 8 / –	–	Transistor	24 V DC, 0.5 A	–	1	DO561	1TNE968902R2201	$105	0.12
– / 16 / –	–	Transistor	24 V DC, 0.5 A	1	1	DO562	1SAP230900R0000	$167	0.16
– / 8 / –	–	Relay	24 V DC, 120 / 240 V AC, 2 A	–	1	DO571	1TNE968902R2202	$123	0.15
– / 8 / –	–	Triac	100-240 V AC, 0.3 A	1	1	DO572	1TNE968902R2203	$184	0.12
– / 16 / –	–	Relay	24 V DC, 120 / 240 V AC, 2 A	1	1	DO573	1SAP231300R0000	$194	0.19
8 / 8/ –	24 V DC	Transistor	24 V DC, 0.5 A	1	1	DX561	1TNE968902R2301	$156	0.12
8 / 8/ –	24 V DC	Relay	24 V DC, 120 / 240 V AC, 2 A	1	1	DX571	1TNE968902R2302	$167	0.15
– / – / 16	24 V DC	Transistor	24 V DC, 0.1A	HE10-20	–	DC561	1TNE968902R2001	$197	0.12
– / – / 16	24 V DC	Transistor	24 V DC, 0.5 A	1	1	DC562	1SAP231900R0000	$182	0.15

Terminal blocks (9 or 11 poles) are necessary for each S500-eCo I/O. They are delivered separately.

PLC AC500
AC500 analog I/O modules

Analog input/output modules

– For central expansion of the AC500 or AC500-eCo CPUs
– For decentralized expansion in combination with communication interface module DC551-CS31, PROFINET CI50x, Fieldbus CI5xx or DC505-FBP (no eCo I/O allowed) for S500 I/Os
– Each channel can be configured individually
– Resolution:12 bits + sign (AI531: 15 bits + sign) (AI561, AO561, AX561: 12 bits/11 bits + sign) (AI562, AI563: 15 bits + sign)



AI531

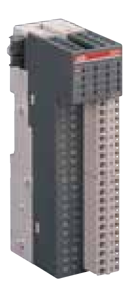
S500 analog I/O modules

– Plug-in electronic modules, terminal unit required (refer to table on terminal base selection page)
– Usable with DC505-FBP and all CI5xx modules

Number of AI/AO	Input signal	Output signal	Terminal units Screw / Spring	Type	Order code	Price	Weight (1 pce) kg
16 / 0	0...10 V, ±10 V 0/4...20 mA, PT100, PT1000, Ni1000	–	TU515 / TU516	AI523	1SAP250300R0001	$955	0.200
4 / 4		±10 V 0/4...20 mA	TU515 / TU516	AX521	1SAP250100R0001	$653	0.200
8 / 8 (max. 4 current outputs)			TU515 / TU516	AX522	1SAP250000R0001	$986	0.200
0 / 16 (max. 8 current outputs)	–		TU515 / TU516	AO523	1SAP250200R0001	$1,015	0.200
8 / 0	0...5 V, 0...10 V, ±50 mV, ±500 mV, 1 V, ±5 V, ±10 V, 0/4...20 mA, ±20 mA, PT100, PT1000, Ni1000, Cu50, 0...50 kΩ, S, T, N, K, J	–	TU515 / TU516	AI531	1SAP250600R0001	$931	0.200

Product for extreme conditions

Number of AI/AO	Input signal	Output signal	Terminal units	Type	Order code	Price	Weight (1 pce) kg
16 / 0	0...10 V, ±10 V 0/4...20 mA PT100, PT1000, Ni1000	–	TU516-XC	AI523-XC	1SAP450300R0001	$1,294	0.200
4 / 4		±10 V 0/4...20 mA	TU516-XC	AX521-XC	1SAP450100R0001	$865	0.200
8 / 8 (max. 4 current outputs)			TU516-XC	AX522-XC	1SAP450000R0001	$1,318	0.200
0 / 16 (max. 8 current outputs)	–		TU516-XC	AO523-XC	1SAP450200R0001	$1,373	0.200
8 / 0	0...5 V, 0...10 V, ±50 mV, ±500 mV, 1 V, ±5 V, ±10 V, 0/4...20 mA, ±20 mA PT100, PT1000, Ni1000, Cu50, 0...50 kΩ, S, T, N, K, J	–	TU516-XC	AI531-XC	1SAP450600R0001	$1,248	0.200



AI561

S500-eCo analog I/O modules

– Not usable with DC505-FBP and CI590-CS31-HA or CI51x-ETHCAT
– Usable with all other CI5xx modules

Number of	Input signal	Output signal	Terminal block required		Type	Order code	Price	Weight (1 pce)
AI/AO			9 poles	11 poles				kg
4 / 0	±2.5 V, ±5 V, 0...5 V, 0...10 V, 0...20 mA, 4...20 mA	–	1	1	AI561	1TNE968902R1101	$197	0.12
2 / 0	PT100, PT1000, Ni100, Ni1000, Resistance: 150 Ω, 300 Ω	–	–	1	AI562	1TNE968902R1102	$276	0.12
4 / 0	S, T, R, E, N, K, J, Voltage range: ±80 mV	–	1	1	AI563	1TNE968902R1103	$271	0.12
0 / 2	–	-10...+10 V, 0...20 mA, 4...20 mA	–	1	AO561	1TNE968902R1201	$220	0.12
4 / 2	±2.5 V, ±5 V, 0...5 V, 0...10 V, 0...20 mA, 4...20 mA	-10...+10 V, 0...20 mA, 4...20 mA	1	1	AX561	1TNE968902R1301	$292	0.13

Terminal blocks (9 or 11 poles) are necessary for each S500-eCo I/O. They are delivered separately.

*SPU: Sales Package Unit

PLC AC500
DA501 module



DA501

Analog/digital mixed I/O module

Standard I/O module with high functionality: 16 digital input channels 24 V DC with configurable input filter time, 8 configurable In/Output channels, DC as DI: 24 V DC, DC as DO: 24 V DC/0.5 A, input filter configurable from 0.1, 1, 8… 32 ms, first two inputs are also usable as high-speed counter (up to 50 kHz) together with AC500 CPU, CS31 or CI5xx communication interface. 4 independent analog input channels configurable for voltage (0…10 V, ±10 V), current (0/4… 20 mA), 12 bit + sign, 1-2 wire connection, 24 V DC process supply voltage. Galvanic isolation per module. Usable with DC505-FBP and all CI5xx modules.

Number of AI/AO/DI/DO/DC	Input signal	Output type	Output signal	Terminal unit Screw / Spring	Type	Order code	Price	Weight (1 pce) kg
4 / 2 / 16 / - / 8	24 V DC/0…10 V, -10…+10 V, 0…20 mA, 4…20 mA, PT100, PT1000, Ni100, Ni1000	Transistor	24 V DC, 0.5 A/ -10…+10 V, 0…20 mA, 4…20 mA	TU515 / TU516	DA501	1SAP250700R0001	$728	0.200

Product for extreme conditions

Number of AI/AO/DI/DO/DC	Input signal	Output type	Output signal	Terminal unit	Type	Order code	Price	Weight (1 pce) kg
4 / 2 / 16 / - / 8	24 V DC, 0…10 V, ±10 V, 0/4…20 mA, PT100, PT1000, Ni100, Ni1000	Transistor	24 V DC, 0.5 A ±10 V, 0/4…20 mA	TU516-XC	DA501-XC	1SAP450700R0001	$827	0.200

PLC AC500
AC500 and AC500-eCo specialty I/O modules



CD522

Multifunctional modules

Functionality	Number of DI/DO/DC	Input signal	Output type	Output signal	Terminal units Screw / Spring	Type	Order code	Price	Weight (1 pce) kg
Encoder module									
Encoder and PWM module	2 / – / 8	24 V DC and 2 encoder inputs A/B/C differential	2 PWM outputs	24 V DC, 0.1 A	TU515 / TU516	CD522	1SAP260300R0001	$646	0.125
Interrupt I/O and fast counter module									
Interrupt I/O and fast counter	– / – / 8	24 V DC	Transistor	24 V DC, 0.5 A	N/A (2)	DC541-CM (1)	1SAP270000R0001	$521	0.100

(1) Can be configured for 32 bit counter (50 kHz). Interrupt inputs, normal outputs, and PWM output.
(2) DC541-CM occupies a communication module slot on the AC500 CPU terminal base, no extra terminal base required.

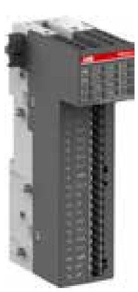


CD522-XC

Multifunctional modules for extreme conditions (-XC versions)

Functionality	Number of DI/DO/DC	Input signal	Output type	Output signal	Terminal unit	Type	Order code	Price	Weight (1 pce) kg
Encoder module									
Encoder and PWM module	2 / – / 8	24 V DC and 2 encoder inputs	2 PWM outputs	–	TU516-XC	CD522-XC	1SAP460300R0001	$875	0.125
Interrupt I/O and fast counter module									
Interrupt I/O and fast counter	– / – / 8	24 V DC	Transistor	24 V DC, 0.5 A	N/A (2)	DC541-CM-XC (1)	1SAP470000R0001	$748	0.100

(1) Can be configured for 32 bit counter (50 kHz). Interrupt inputs, normal outputs, and PWM output.
(2) DC541-CM occupies a communication module slot on the AC500 CPU terminal base, no extra terminal base required.



FM562

Positioning module

- For central expansion of the AC500 or AC500-eCo CPUs
- For decentralized expansion in combination with communication interface modules CI58X-CN, CI50X-PNIO or CI54X-DP
- Not for use in combination with communication interface modules DC551-CS31, DC505-FBP, CI51X or CI59X
- The FM562 module provides Pulse Train Outputs for 2 axes. Profile generator integrated.

Number of axis	Input signal	Output signal	Terminal block required 9 poles	Terminal block required 11 poles	Type	Order code	Price	Weight (1 pce) kg
2	4 digital inputs 24 V (2 per axis)	4 pulse outputs RS422 (2 per axis)	1	1	FM562	1SAP233100R0001	$379	0.15

Terminal blocks (9 or 11 poles) are necessary for each S500-eCo I/O. They are delivered separately.
Library PS552-MC-E is required for programming this module.

PLC AC500
Remote I/O modules



DC505-FBP



CI541-DP



CI511-ETHCAT



CI501-PNIO



CI504-PNIO

Communication interface modules

Number of AI/AO/DI/DO/DC	Input signal	Output type	Output signal	Terminal units Screw / Spring	Type	Order code	Price	Weight (1 pce) kg
Communication interface module for FieldBusPlug								
- / - / 8 / - / 8	24 V DC	Transistor	24 V DC, 0.5 A	TU505-FBP / TU506-FBP	DC505-FBP	1SAP220000R0001	$209	0.200
Communication interface module for CS31-Bus								
- / - / 8 / - / 16	24 V DC	Transistor	24 V DC, 0.5 A	TU551-CS31 / TU552-CS31	DC551-CS31	1SAP220500R0001	$444	0.200
- / - / - / - / 16	24 V DC	Transistor	24 V DC, 0.5 A	TU551-CS31 / TU552-CS31	CI590-CS31-HA	1SAP221100R0001	$733	0.200
4 / 2 / 8 / - / 8	24 V DC/ 0…10 V, -10…+10 V, 0…20 mA, 4…20 mA, PT100, PT1000, Ni100, Ni1000	Transistor	24 V DC, 0.5 A/ -10…+10 V, 0…20 mA, 4…20 mA	TU551-CS31 / TU552-CS31	CI592-CS31	1SAP221200R0001	$688	0.200
Communication interface module for PROFIBUS®-DP								
4 / 2 / 8 / 8 / -	24 V DC/ 0…10 V, -10…+10 V, 0…20 mA, 4…20 mA, PT100, PT1000, Ni100, Ni1000	Transistor	24 V DC, 0.5 A/ -10…+10 V, 0…20 mA, 4…20 mA (1)	TU509/TU510/ TU517/TU518	CI541-DP	1SAP224100R0001	$882	0.200
- / - / 8 / 8 / 8	24 V DC	Transistor	24 V DC, 0.5 A	TU509/TU510/ TU517/TU518	CI542-DP	1SAP224200R0001	$591	0.200
Communication interface module for CANopen®								
4 / 2 / 8 / 8 / -	24 V DC/ 0…10 V, -10…+10 V, 0…20 mA, 4…20 mA, PT100, PT1000, Ni100, Ni1000	Transistor	24 V DC, 0.5 A/ -10…+10 V, 0…20 mA, 4…20 mA	TU509/TU510/ TU517/TU518	CI581-CN	1SAP228100R0001	$882	0.200
- / - / 8 / 8 / 8	24 V DC	Transistor	24 V DC, 0.5 A	TU509/TU510/ TU517/TU518	CI582-CN	1SAP228200R0001	$591	0.200
Communication interface module for Ethernet based protocol - EtherCAT®								
4 / 2 / 8 / 8 / -	24 V DC/0…10 V, -10…+10 V, 0…20 mA, 4…20 mA, PT100, PT1000, Ni100, Ni1000	Transistor	24 V DC, 0.5 A / -10…+10 V, 0…20 mA, 4…20 mA	TU507-ETH / TU508-ETH	CI511-ETHCAT	1SAP220900R0001	$1,115	0.200
- / - / 8 / 8 / 8	24 V DC	Transistor	24 V DC, 0.5 A	TU507-ETH / TU508-ETH	CI512-ETHCAT	1SAP221000R0001	$595	0.200
Communication interface module for Ethernet based protocol - PROFINET® IO RT								
4/2/8/8/-	24 V DC/0…10 V, -10…+10 V, 0…20 mA, 4…20 mA, PT100, PT1000, Ni100, Ni1000	Transistor	24 V DC, 0.5 A/ -10…+10 V, 0…20 mA, 4…20 mA	TU507-ETH / TU508-ETH	CI501-PNIO	1SAP220600R0001	$1,115	0.200
-/-/8/8/8	24 V DC	Transistor	24 V DC, 0.5 A	TU507-ETH / TU508-ETH	CI502-PNIO	1SAP220700R0001	$595	0.200

Communication interface gateway modules

From	To	Output signal	Terminal units	Type	Order code	Price	Weight (1 pce) kg
Communication interface module gateway on Ethernet based protocol - PROFINET® IO RT							
PROFINET® I/O	–	3 x RS232/485 ASCII serial interfaces	TU520-ETH	CI504-PNIO	1SAP221300R0001	$761	0.200
PROFINET® I/O	1x CAN 2A/2B or CANopen® Master	2 x RS232/485 ASCII serial interfaces	TU520-ETH	CI506-PNIO	1SAP221500R0001	$1,199	0.200

PLC AC500
Remote I/O modules



DC551-CS31-XC



CI541-DP-XC



CI581-CN-XC



CI502-PNIO-XC



CI506-PNIO-XC

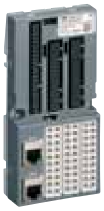
Communication interface modules for extreme conditions -XC

Number of AI/AO/DI/DO/DC	Input signal	Output type	Output signal	Terminal units	Type	Order code	Price	Weight (1 pce) kg
Communication interface module for CS31-Bus								
- / - / 8 / - / 16	24 V DC	Transistor	24 V DC, 0.5 A	TU552-CS31-XC	DC551-CS31-XC	1SAP420500R0001	$590	0.200
- / - / - / - / 16	24 V DC	Transistor	24 V DC, 0.5 A	TU552-CS31-XC	CI590-CS31-HA-XC	1SAP421100R0001	$976	0.200
4 / 2 / 8 / - / 8	24 V DC / 0...10 V, -10...+10 V, 0...20 mA, 4...20 mA, PT100, PT1000, Ni100, Ni1000	Transistor	24 V DC, 0.5 A / -10...+10 V, 0...20 mA, 4...20 mA	TU552-CS31-XC	CI592-CS31-XC	1SAP421200R0001	$890	0.200
Communication interface module for PROFIBUS®-DP								
4 / 2 / 8 / 8 / -	24 V DC / 0...10 V, -10...+10 V, 0...20 mA, 4...20 mA, PT100, PT1000, Ni100, Ni1000	Transistor	24 V DC, 0.5 A / -10...+10 V, 0...20 mA, 4...20 mA	TU510-XC / TU518-XC	CI541-DP-XC	1SAP424100R0001	$1,137	0.200
- / - / 8 / 8 / 8	24 V DC	Transistor	24 V DC, 0.5 A	TU510-XC / TU518-XC	CI542-DP-XC	1SAP424200R0001	$710	0.200
Communication interface module for CANopen®								
4 / 2 / 8 / 8 / -	24 V DC / 0...10 V, -10...+10 V, 0...20 mA, 4...20 mA, PT100, PT1000, Ni100, Ni1000	Transistor	24 V DC, 0.5 A / -10...+10 V, 0...20 mA, 4...20 mA	TU510-XC / TU518-XC	CI581-CN-XC	1SAP428100R0001	$1,137	0.200
- / - / 8 / 8 / 8	24 V DC	Transistor	24 V DC, 0.5 A	TU510-XC / TU518-XC	CI582-CN-XC	1SAP428200R0001	$710	0.200
Communication interface module for Ethernet based protocol - PROFINET® IO RT								
4 / 2 / 8 / 8 / -	24 V DC / 0...10 V, -10...+10 V, 0...20 mA, 4...20 mA, PT100, PT1000, Ni100, Ni1000	Transistor	24 V DC, 0.5 A / -10...+10 V, 0...20 mA, 4...20 mA	TU508-ETH-XC	CI501-PNIO-XC	1SAP420600R0001	$1,476	0.200
- / - / 8 / 8 / 8	24 V DC	Transistor	24 V DC, 0.5 A	TU508-ETH-XC	CI502-PNIO-XC	1SAP420700R0001	$801	0.200

Communication interface gateway modules for extreme conditions -XC

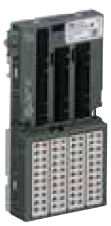
From	To	Output signal	Terminal units	Type	Order code	Price	Weight (1 pce) kg
Communication interface module gateway for Ethernet based protocol - PROFINET® IO RT							
PROFINET® I/O	–	3 x RS232/485 ASCII serial interfaces	TU520-ETH-XC	CI504-PNIO-XC	1SAP421300R0001	$986	0.200
PROFINET® I/O	1 x CAN 2A/2B or CANopen® Master	2 x RS232/485 ASCII serial interfaces	TU520-ETH-XC	CI506-PNIO-XC	1SAP421500R0001	$1,539	0.200

PLC AC500
Terminal base selection

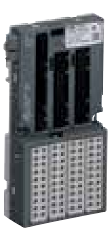

TU508-ETH

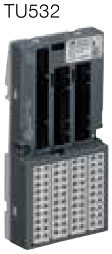

TU515


TU551-CS31


TU516


TU520-ETH


TU532


TU552-CS31

Terminal units

For digital and analog expansion modules and interface modules. Please NOTE: for modules with relay outputs, terminal units for 230 V AC (TU531/ TU532) are required! For the module-terminal unit assignments, please consult the table.

	For I/O modules				For communication interface modules										
	TU515 / TU516	TU531 / TU532	TU516-XC	TU532-XC	TU505-FBP / TU506-FBP	TU507-ETH / TU508-ETH	TU509/TU510	TU517/TU518	TU520-ETH	TU551-CS31 / TU552-CS31	TU508-ETH-XC	TU510-XC	TU518-XC	TU520-ETH-XC	TU552-CS31-XC
DA501	•														
DC522	•														
DC523	•														
DC532	•														
DI524	•														
DO524	•														
DX522		•													
DX531		•													
CD522	•														
AI523	•														
AI531	•														
AO523	•														
AX521	•														
AX522	•														
DA501-XC			•												
DC522-XC			•												
DC523-XC			•												
DC532-XC			•												
DI524-XC			•												
DO524-XC			•												
DX522-XC				•											
CD522-XC			•												
AI523-XC			•												
AI531-XC			•												
AO523-XC			•												
AX521-XC			•												
AX522-XC			•												
DC505-FBP					•										
DC551-CS31										•					
CI590-CS31-HA										•					
CI592-CS31										•					
CI501-PNIO						•									
CI502-PNIO						•									
CI504-PNIO									•						
CI506-PNIO									•						
CI511-ETHCAT						•									
CI512-ETHCAT						•									
CI541-DP							•								
CI542-DP							•								
CI581-CN								•							
CI582-CN								•							
DC551-CS31-XC															•
CI590-CS31-HA-XC															•
CI592-CS31-XC															•
CI501-PNIO-XC											•				
CI502-PNIO-XC											•				
CI504-PNIO-XC														•	
CI506-PNIO-XC														•	
CI541-DP-XC												•			
CI542-DP-XC												•			
CI581-CN-XC													•		
CI582-CN-XC													•		

PLC AC500
Terminal base and terminal block ordering data


TU505-FBP


TU531

Terminal units

For digital and analog expansion modules and interface modules. Please note: for modules with relay outputs, terminal units for 230 V AC (TU531 / TU532) are required.

For	Supply	Connection type	Type	Order code	Price	Weight (1 pce) kg
FBP interface modules	–	Screw	TU505-FBP	1SAP210200R0001	$84	0.300
		Spring	TU506-FBP	1SAP210000R0001	$84	0.300
Ethernet interface modules	24 V DC	Screw	TU507-ETH	1SAP214200R0001	$131	0.300
		Spring	TU508-ETH	1SAP214000R0001	$131	0.300
Ethernet gateway modules	24 V DC	Spring	TU520-ETH	1SAP214400R0001	$168	0.300
CANopen® / PROFIBUS® DP (1) interface modules	24 V DC	Screw	TU517	1SAP211400R0001	$112	0.300
		Spring	TU518	1SAP211200R0001	$112	0.300
PROFIBUS® DP / CANopen® interface modules	24 V DC	Screw	TU509	1SAP211000R0001	$112	0.300
		Spring	TU510	1SAP210800R0001	$112	0.300
I/O modules	24 V DC	Screw	TU515	1SAP212200R0001	$84	0.300
		Spring	TU516	1SAP212000R0001	$84	0.300
I/O modules AC / relay	230 V AC	Screw	TU531	1SAP217200R0001	$95	0.300
		Spring	TU532	1SAP217000R0001	$95	0.300
CS31 interface modules	24 V DC	Screw	TU551-CS31	1SAP210600R0001	$84	0.300
		Spring	TU552-CS31	1SAP210400R0001	$84	0.300

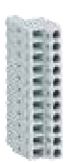
(1) TU517/TU518 Terminal units can also be used with PROFIBUS® DP with limited baud rate.

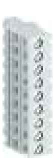
Product for extreme condition

For	Supply	Connection type	Type	Order code	Price	Weight (1 pce) kg
Ethernet interface modules	24 V DC	Spring	TU508-ETH-XC	1SAP414000R0001	$175	0.300
CANopen®/PROFIBUS® DP interface modules	24 V DC	Spring	TU510-XC	1SAP410800R0001	$139	0.300
I/O modules	24 V DC	Spring	TU516-XC	1SAP412000R0001	$114	0.300
CANopen®/PROFIBUS® DP interface modules	24 V DC	Spring	TU518-XC (1)	1SAP411200R0001	$139	0.300
Ethernet gateway modules	24 V DC	Spring	TU520-ETH-XC	1SAP414400R0001	$223	0.300
I/O modules AC / Relay	230 V AC	Spring	TU532-XC	1SAP417000R0001	$125	0.300
CS31 interface modules	24 V DC	Spring	TU552-CS31-XC	1SAP410400R0001	$125	0.300

(1) TU518-XC Terminal units can also be used with PROFIBUS® DP with limited baud rate.


TA565-9


TA564-11


TA563-9

Terminal blocks for S500-eCo I/O modules and AC500-eCo CPUs

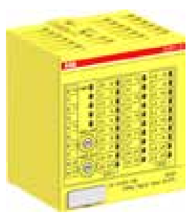
Number of poles	Connection type	Cable entry	Type	Order code	Price	Weight (1 pce) kg
9	Screw	Side	TA563-9	1TNE968901R3101	$11	0.017
11	Screw	Side	TA563-11	1TNE968901R3102	$13	0.020
9	Screw	Front	TA564-9	1TNE968901R3103	$11	0.026
11	Screw	Front	TA564-11	1TNE968901R3104	$13	0.035
9	Spring	Front	TA565-9	1TNE968901R3105	$11	0.016
11	Spring	Front	TA565-11	1TNE968901R3106	$13	0.020

⚠ Only ABB terminal blocks must be used with AC500-eCo.

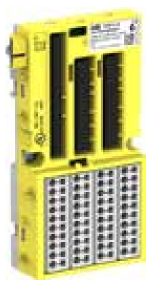
AC500-S
Functional Safety PLC from ABB



SM560-S



DI581-S



TU582-S



SM560-S-XC



DI581-S-XC

Safety CPU

Description	User program memory	Type	Order code	Price	Weight (1 pce)
	MB				kg
Safety CPU module	1	SM560-S	1SAP280000R0001	$1,945	0.100

S500 Safety I/O

Description	Input signal		Output signal	Type	Order code	Price	Weight (1 pce)
	SIL2	SIL3	SIL3				kg
Safety digital input module	16	8	-	DI581-S	1SAP284000R0001	$806	0.130
Safety digital input / output module	8	4	8	DX581-S	1SAP284100R0001	$904	0.130
Safety analog input module	4	2	-	AI581-S	1SAP282000R0001	$963	0.130

S500 Safety terminal unit

Description	Type	Order code	Price	Weight (1 pce)
				kg
Spring terminal unit for safety I/O modules	TU582-S	1SAP281200R0001	$114	0.200

Safety Software License

Description	Type	Order code	Price	Weight (1 pce)
				kg
Licence enabling package for AC500-S Safety PLC programming	PS501-S	1SAP198000R0001	$2,260	0.100

For Safety Applications in Extreme Conditions (-XC)

Safety XC CPU

Description	User program memory	Type	Order code	Price	Weight (1 pce)
	MB				kg
Safety CPU module	1	SM560-S-XC	1SAP380000R0001	$2,256	0.100

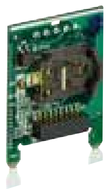
S500-XC Safety I/O

Description	Input signal		Output signal	Type	Order code	Price	Weight (1 pce)
	SIL2	SIL3	SIL3				kg
Safety digital input module	16	8	-	DI581-S-XC	1SAP484000R0001	$935	0.130
Safety digital input / output module	8	4	8	DX581-S-XC	1SAP484100R0001	$1,045	0.130
Safety analog input module	4	2	-	AI581-S-XC	1SAP482000R0001	$1,119	0.130

S500-XC Safety terminal unit

Description	Type	Order code	Price	Weight (1 pce)
				kg
Spring terminal unit for safety I/O modules	TU582-S-XC	1SAP481200R0001	$132	0.200

PLC AC500
Accessories for AC500-eCo



TA561-RTC



TA562-RS-RTC



TK506



TA566



TA574-A-R

Description	Type	Order code	Price	Weight (1 pce) kg
SD Memory Card 2 GB needs the MC503 option	MC502	1SAP180100R0001	$138	0.020
SD Memory Card adapter	MC503	1TNE968901R0100	$55	0.010
Programming cable USB => RS485 Sub-D, 3 m	TK503	1TNE968901R1100	$135	0.400
Programming cable USB => RS485 Terminal block, 3 m	TK504	1TNE968901R2100	$164	0.400
RS485 isolator, Sub-D 9 poles / Terminal 5 poles for COM1	TK506	1SAP186100R0001	$179	0.080
Real time clock option board, battery CR2032 not included	TA561-RTC (1)	1SAP181400R0001	$52	0.007
RS485 serial adapter COM2, pluggable screw terminal block included	TA562-RS	1TNE968901R4300	$78	0.007
Combined Real Time Clock option with RS485 serial adapter COM2, pluggable screw terminal block, included	TA562-RS-RTC (1)	1SAP181500R0001	$103	0.012
Wall Mounting Accessory for AC500-eCo CPU and S500-eCo I/O modules (100 pieces per case)	TA566	1TNE968901R3107	$78	0.450
Set of accessories: 6 x plastic cover for option slot, 6 x 5 pole terminal block, 6 x 5 pole screw terminal block for COM2 serial interface.	TA570	1TNE968901R3203	$105	0.090
Digital input simulator for onboard I/O of CPU, 6 x switch, 24 V DC	TA571-SIM	1TNE968903R0203	$105	0.040

(1) Standard battery CR 2032 has to be purchased separately.

AC500-eCo Starter Kits

Each kit comes with CPU, programming cable, digital input simulator, PS501 full functional version without update and “Getting started” handbook.

CPU module in the starter	Programming cable (included)	Type	Order code	List price	Weight per piece (kg)
PM554-T-ETH	Ethernet	TA574-D-T-ETH	1SAP186200R0004	$475	1.400

PLC AC500
Accessories for AC500



TK501





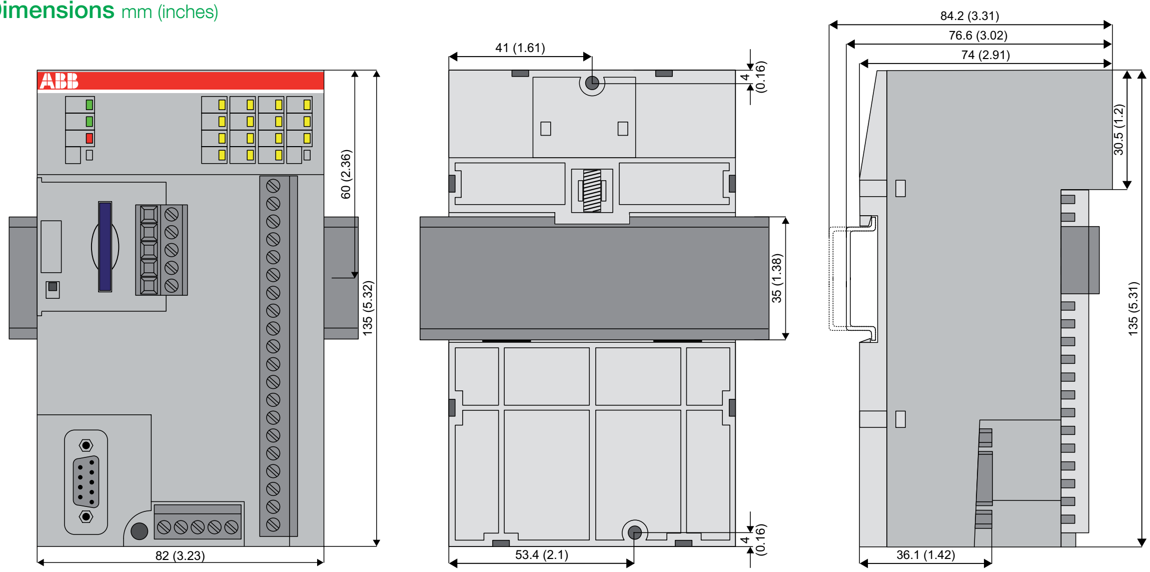
TA512-BAS

For	Description	Type	Order code	Price	Weight (1 pce) kg
AC500 CPUs COM1	Programming cable Sub-D / terminal block, length 5 m	TK502	1SAP180200R0101	$180	0.400
AC500 CPUs COM2	Programming cable Sub-D / Sub-D, length 5 m	TK501	1SAP180200R0001	$180	0.400
AC500 CPUs	Memory card (2 GB SD card)	MC502	1SAP180100R0001	$138	0.020
	Lithium battery for data buffering	TA521	1SAP180300R0001	$95	0.100
Protective caps for TB, TU, and CM when using -XC CPU base	10x Sub-D plastic caps 20x RJ45 plastic caps 10x M12 plastic caps	TA535	1SAP182300R0001	$70	0.300
I/O modules	Pluggable marker holder for I/O modules, packing unit incl. 10 pcs	TA523	1SAP180500R0001	$86	0.300
	White labels, packing unit incl. 10 pcs	TA525	1SAP180700R0001	$22	0.100
Terminal base	Communication module, dummy housing	TA524	1SAP180600R0001	$22	0.120
CPU terminal base	Accessories for wall mounting, packing unit includes 10 pcs	TA526	1SAP180800R0001	$22	0.200
	5-pole power plug for AC500. Spare part. Can be plugged to CPU terminal base TB5x1. Packing unit includes 5 pcs	TA527	1SAP181100R0001	$101	0.200
	9-pole COM1 plug for AC500. Spare part. Can be plugged to CPU terminal base TB5x1. Packing unit includes 5 pcs	TA528	1SAP181200R0001	$130	0.200
AC500 basic training case CPU, I/Os, HMI	PM583-ETH + CM572 + AX561 + DC551 + CI542 + CP635 + power supply + cables + simulation stand	TA512-BAS	1SAP182400R0001	$4,156	7.000
AC500 advanced training case CPU, I/Os, COM, encoder	PM583-ETH + CM574 + CM578 + CM579 + CM579-ETHCAT + CD522 + power supply + cables + simulation stand	TA513-ADV	1SAP182500R0001	$6,710	8.800

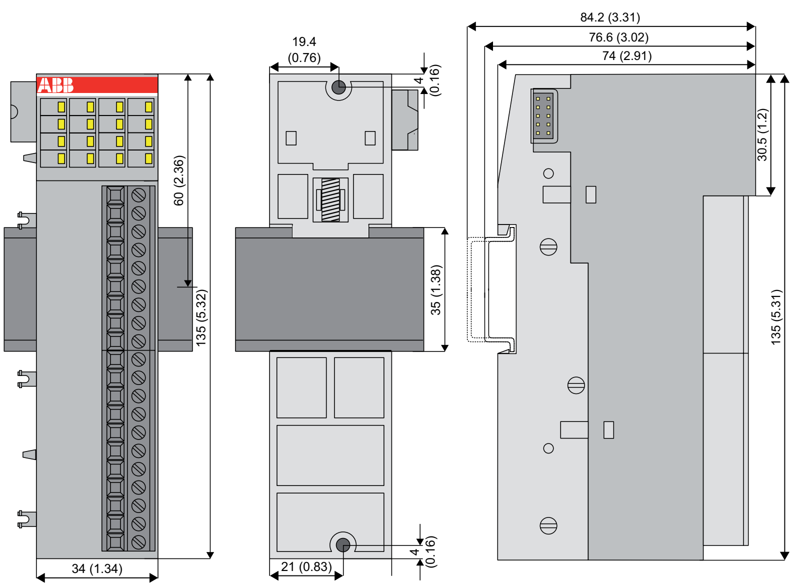
PLC AC500

AC500-eCo CPU, I/O expansion and interface module dimensions

Dimensions mm (inches)



CPU AC500-eCo

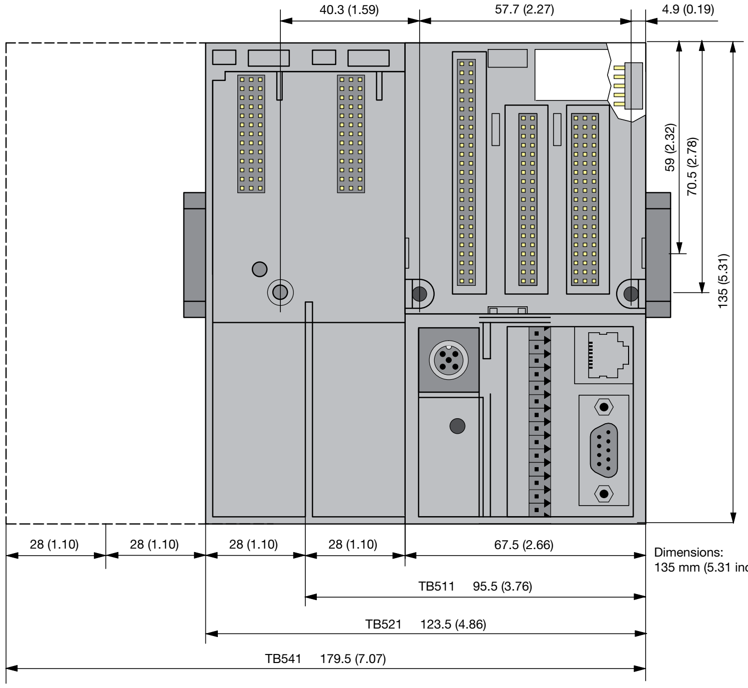


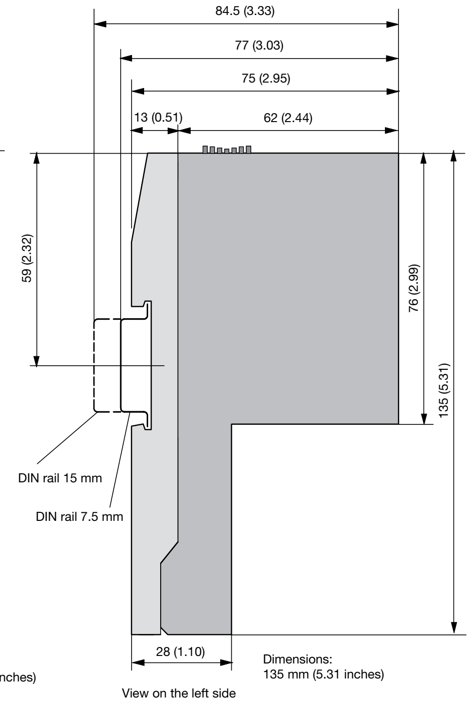
I/O expansion

PLC AC500

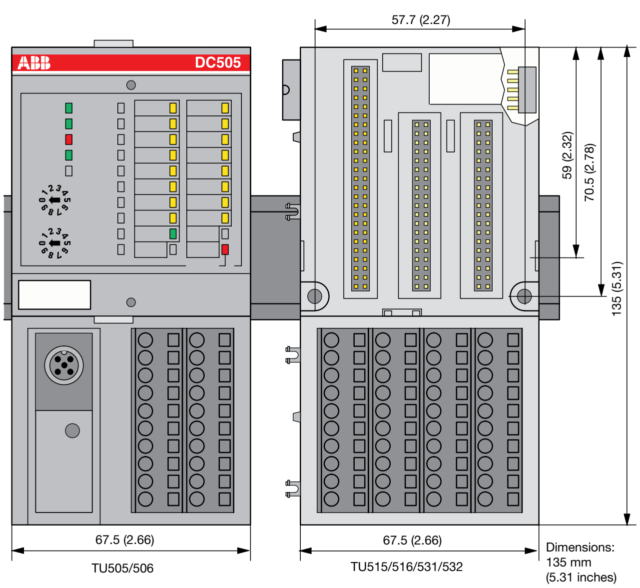
AC500 CPU terminal bases TB5XX, I/O expansion and interface module dimensions

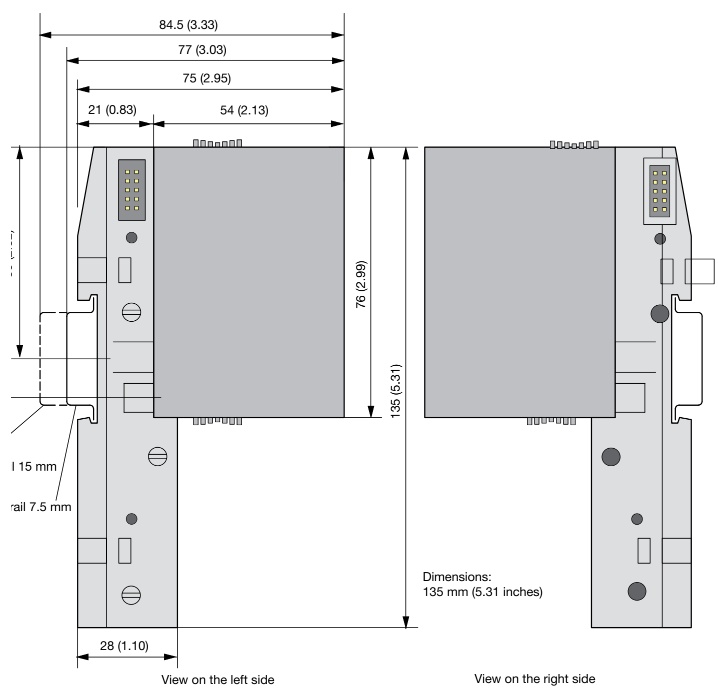
Dimensions mm (inches)





CPU terminal base TB511, TB521 and TB541





Additional information
Approvals and certifications

Symbols and legends:

■ Standard product certified: product sticker wears approval mark when mandatory

□ Approval submitted (roadmap available upon request)

◇ Submission planned (roadmap available upon request)

N.A. Not applicable **N.N.** Not needed

	Approvals						Shipping classification companies							Others
Symbol														
Abbreviation	CE	cUL		TR	C-Tick	KCC	ABS	BV	DNV	GL	LR	RINA	RMRS	ROHS
Name		Ordinary Locations	Hazardous Locations Class I Div 2	TR CU 004/2011 Formerly known as GOST-R										
AI523	■	■	■	□	■	■	■	■	■	■	■	■	■	■
AI523-XC	■	■	■	□	■	■	■	■	■	■	■	■	■	■
AI531	■	■	■	□	■	■	■	■	■	■	■	■	■	■
AI531-XC	■	■	■	□	■	■	■	■	■	■	■	■	■	■
AI561	■	■	■	□	■	■	■	■	■	■	■	■	■	■
AI562	■	■	■	□	■	■	■	■	■	■	■	■	■	■
AI563	■	■	■	□	■	■	■	■	■	■	■	■	■	■
AI581-S	■	■	■	□	■	■	■	■	■	■	■	■	■	■
AI581-S-XC	■	■	■	□	■	■	■	■	■	■	■	■	■	■
AO523	■	■	■	□	■	■	■	■	■	■	■	■	■	■
AO523-XC	■	■	■	□	■	■	■	■	■	■	■	■	■	■
AO561	■	■	■	□	■	■	■	■	■	■	■	■	■	■
AX521	■	■	■	□	■	■	■	■	■	■	■	■	■	■
AX521-XC	■	■	■	□	■	■	■	■	■	■	■	■	■	■
AX522	■	■	■	□	■	■	■	■	■	■	■	■	■	■
AX522-XC	■	■	■	□	■	■	■	■	■	■	■	■	■	■
AX561	■	■	■	□	■	■	■	■	■	■	■	■	■	■
CD522	■	■	■	□	■	■	■	■	■	■	■	■	■	■
CD522-XC	■	■	■	□	■	■	■	■	■	■	■	■	■	■
CI501-PNIO	■	■	■	□	■	■	■	■	■	■	■	■	■	■
CI501-PNIO-XC	■	■	■	□	■	■	■	■	■	■	■	■	■	■
CI502-PNIO	■	■	■	□	■	■	■	■	■	■	■	■	■	■
CI502-PNIO-XC	■	■	■	□	■	■	■	■	■	■	■	■	■	■
CI504-PNIO	■	■	■	□	■	■	■	■	■	■	■	■	■	■
CI504-PNIO-XC	■	■	■	□	■	■	■	■	■	■	■	■	■	■
CI506-PNIO	■	■	■	□	■	■	■	■	■	■	■	■	■	■
CI506-PNIO-XC	■	■	■	□	■	■	■	■	■	■	■	■	■	■
CI511-ETHCAT	■	■	■	□	■	■	■	■	■	■	■	■	■	■
CI512-ETHCAT	■	■	■	□	■	■	■	■	■	■	■	■	■	■
CI541-DP	■	■	■	□	■	■	■	■	■	■	■	■	■	■
CI541-DP-XC	■	■	■	□	■	■	■	■	■	■	■	■	■	■
CI542-DP	■	■	■	□	■	■	■	■	■	■	■	■	■	■
CI542-DP-XC	■	■	■	□	■	■	■	■	■	■	■	■	■	■
CI581-CN	■	■	■	□	■	■	■	■	■	■	■	■	■	■
CI581-CN-XC	■	■	■	□	■	■	■	■	■	■	■	■	■	■
CI582-CN	■	■	■	□	■	■	■	■	■	■	■	■	■	■
CI582-CN-XC	■	■	■	□	■	■	■	■	■	■	■	■	■	■
CI590-CS31-HA	■	■	■	□	■	■	■	■	■	■	■	■	■	■
CI590-CS31-HA-XC	■	■	■	□	■	■	■	■	■	■	■	■	■	■
CI592-CS31	■	■	■	□	■	■	■	■	■	■	■	■	■	■
CI592-CS31-XC	■	■	■	□	■	■	■	■	■	■	■	■	■	■
CM572-DP	■	■	■	□	■	■	■	■	■	■	■	■	■	■
CM572-DP-XC	■	■	■	□	■	■	■	■	■	■	■	■	■	■
CM574-RCOM	■	■	■	□	■	■	■	■	■	■	■	■	■	■
CM574-RS	■	■	■	□	■	■	■	■	■	■	■	■	■	■
CM578-CN	■	■	■	□	■	■	■	■	■	■	■	■	■	■
CM578-CN-XC	■	■	■	□	■	■	■	■	■	■	■	■	■	■
CM579-ETHCAT	■	■	■	□	■	■	■	■	■	■	■	■	■	■
CM579-PNIO	■	■	■	□	■	◇	◇	◇	◇	◇	◇	◇	◇	■
CM579-PNIO-XC	■	■	■	□	■	◇	◇	◇	◇	◇	◇	◇	◇	■
CM588-CN	■	■	■	□	■	■	■	■	■	■	■	■	■	■
CM588-CN-XC	■	■	■	□	■	■	■	■	■	■	■	■	■	■
CM589-PNIO	■	■	□	□	■	◇	◇	◇	◇	◇	◇	◇	◇	■
CM589-PNIO-XC	■	■	□	□	■	◇	◇	◇	◇	◇	◇	◇	◇	■
CM597-ETH	■	■	□	□	■	◇	◇	◇	◇	◇	◇	◇	◇	■
CM597-ETH-XC	■	■	□	□	■	◇	◇	◇	◇	◇	◇	◇	◇	■

Additional information
Approvals and certifications

Symbols and legends:
■ Standard product certified: product sticker wears approval mark when mandatory
□ Approval submitted (roadmap available upon request)
◇ Submission planned (roadmap available upon request)
N.A. Not applicable   N.N. Not needed

	Approvals						Shipping classification companies							Others
Abbreviation	CE	cUL		TR	C-Tick	KCC	ABS	BV	DNV	GL	LR	RINA	RMRS	ROHS
Name		Ordinary Locations	Hazardous Locations Class I Div 2	TR CU 004/2011 Formerly known as GOST-R										
CP620	■	■	■	□	■	■			■	■				■
CP620-WEB	■	■	■	□	■	■			■	■				■
CP630	■	■	■	□	■	■			■	■				■
CP630-WEB	■	■	■	□	■	■			■	■				■
CP635	■	■	■	□	■	■			■	■				■
CP635-WEB	■	■	■	□	■	■			■	■				■
CP650	■	■		□	■	■			■					■
CP650-WEB	■	■		□	■	■			■					■
CP651	■	■	■	□	■	□			■	■				■
CP651-WEB	■	■	■	□	■	□			■	■				■
CP660	■	■		□	■	■			■					■
CP660-WEB	■	■		□	■	■			■					■
CP661	■	■	■	□	■	□			■	■				■
CP661-WEB	■	■	■	□	■	□			■	■				■
CP665	■	■	■	□	■	□			■	■				■
CP665-WEB	■	■	■	□	■	□			■	■				■
CP675	■	■		□	■	■			■					■
CP675-WEB	■	■		□	■	■			■					■
CP676	■	■	■	□	■	□			■	■				■
CP676-WEB	■	■	■	□	■	□			■	■				■
DA501	■	■	■	□	■	■	■	■	■	■	■	■	■	■
DA501-XC	■	■	■	□	■	■	■	■	■	■	■	■	■	■
DC522	■	■	■	□	■	■	■	■	■	■	■	■	■	■
DC522-XC	■	■	■	□	■	■	■	■	■	■	■	■	■	■
DC523	■	■	■	□	■	■	■	■	■	■	■	■	■	■
DC523-XC	■	■	■	□	■	■	■	■	■	■	■	■	■	■
DC532	■	■	■	□	■	■	■	■	■	■	■	■	■	■
DC532-XC	■	■	■	□	■	■	■	■	■	■	■	■	■	■
DC541-CM	■	■	■	□	■	■	■	■	■	■	■	■	■	■
DC541-CM-XC	■	■	■	□	■	■	■	■	■	■	■	■	■	■
DC551-CS31	■	■	■	□	■	■	■	■	■	■	■	■	■	■
DC551-CS31-XC	■	■	■	□	■	■	■	■	■	■	■	■	■	■
DC561	■	■	■	□	■	■	■	■	■	■	■	■	■	■
DC562	■	■	■	□	■	□	◇	◇	◇	◇	◇	◇	◇	■
DI524	■	■	■	□	■	■	■	■	■	■	■	■	■	■
DI524-XC	■	■	■	□	■	■	■	■	■	■	■	■	■	■
DI561	■	■	■	□	■	■	■	■	■	■	■	■	■	■
DI562	■	■	■	□	■	■	■	■	■	■	■	■	■	■
DI571	■	■	■	□	■	■	■	■	■	■	■	■	■	■
DI572	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇
DI581-S	■	■	■	□	■	■	■	■	■	■	■	■	■	■
DI581-S-XC	■	■	■	□	■	■	■	■	■	■	■	■	■	■
DO524	■	■	■	□	■	◇	◇	◇	◇	◇	◇	◇	◇	■
DO524-XC	■	■	■	□	■	◇	◇	◇	◇	◇	◇	◇	◇	■
DO561	■	■	■	□	■	■	■	■	■	■	■	■	■	■
DO562	■	■	■	□	■	□	◇	◇	◇	◇	◇	◇	◇	■
DO571	■	■	■	□	■	■	■	■	■	■	■	■	■	■
DO572	■	■	■	□	■	■	■	■	■	■	■	■	■	■
DO573	■	■	■	□	■	□	◇	◇	◇	◇	◇	◇	◇	■
DX522	■	■	■	□	■	■	■	■	■	■	■	■	■	■
DX522-XC	■	■	■	□	■	■	■	■	■	■	■	■	■	■
DX531	■	■	■	□	■	■	■	■	■	■	■	■	■	■
DX561	■	■	■	□	■	■	■	■	■	■	■	■	■	■
DX571	■	■	■	□	■	■	■	■	■	■	■	■	■	■
DX581-S	■	■	■	□	■	■	■	■	■	■	■	■	■	■
DX581-S-XC	■	■	■	□	■	■	■	■	■	■	■	■	■	■

Additional information
Approvals and certifications

Symbols and legends: ■ Standard product certified: product sticker wears approval mark when mandatory | ◇ Submission planned (roadmap available upon request)

□ Approval submitted (roadmap available upon request) | N.A. Not applicable | N.N. Not needed

	Approvals						Shipping classification companies							Others
Symbol	CE mark	cUL US Listed												RoHS
Abbreviation	CE	cUL		TR	C-Tick	KCC	ABS	BV	DNV	GL	LR	RINA	RMRS	ROHS
Name		Ordinary Locations	Hazardous Locations Class I Div 2	TR CU 004/2011 Formerly known as GOST-R										
FM562	■	■	■	□	■	□	◇	◇	◇	◇	◇	◇	◇	■
MC502	N.A.	■	■	□	N.A.	N.A.	■	■	■	■	■	■	■	■
MC503	■	■	■	□	■		■	■	■	■	■	■	■	■
PM554-RP	■	■	■	□	■	□	■	■	■	■	■	■	■	■
PM554-RP-AC	■	■	■	□	■	□	■	■	■	■	■	■	■	■
PM554-TP	■	■	■	□	■	□	■	■	■	■	■	■	■	■
PM554-TP-ETH	■	■	■	□	■	□	■	■	■	■	■	■	■	■
PM556-TP-ETH	■	■	■	□	■	□	■	■	■	■	■	■	■	■
PM564-RP	■	■	■	□	■	□	■	■	■	■	■	■	■	■
PM564-RP-AC	■	■	■	□	■	□	■	■	■	■	■	■	■	■
PM564-RP-ETH	■	■	■	□	■	□	■	■	■	■	■	■	■	■
PM564-RP-ETH-AC	■	■	■	□	■	□	■	■	■	■	■	■	■	■
PM564-TP	■	■	■	□	■	□	■	■	■	■	■	■	■	■
PM564-TP-ETH	■	■	■	□	■	□	■	■	■	■	■	■	■	■
PM572	■	■	■	□	■	■	■	■	■	■	■	■	■	■
PM573-ETH	■	■	■	□	■	■	■	■	■	■	■	■	■	■
PM573-ETH-XC	■	■	■	□	■	■	■	■	■	■	■	■	■	■
PM582	■	■	■	□	■	■	■	■	■	■	■	■	■	■
PM582-XC	■	■	■	□	■	■	■	■	■	■	■	■	■	■
PM583-ETH	■	■	■	□	■	■	■	■	■	■	■	■	■	■
PM583-ETH-XC	■	■	■	□	■	■	■	■	■	■	■	■	■	■
PM590-ETH	■	■	■	□	■	■	■	■	■	■	■	■	■	■
PM591-2ETH	■	■	◇	□	■	◇	◇	◇	◇	◇	◇	◇	◇	■
PM591-ETH	■	■	■	□	■	■	■	■	■	■	■	■	■	■
PM591-ETH-XC	■	■	■	□	■	■	■	■	■	■	■	■	■	■
PM592-ETH	■	■	■	□	■	■	■	■	■	■	■	■	■	■
PM592-ETH-XC	■	■	■	□	■	■	■	■	■	■	■	■	■	■
PM595-4ETH-F	■	■	□	□	■	◇	◇	◇	◇	◇	◇	◇	◇	■
PM595-4ETH-M-XC	■	■	□	□	■	◇	◇	◇	◇	◇	◇	◇	◇	■
SM560-S	■	■	■	□	■	■	■	■	■	■	■	■	■	■
SM560-S-XC	■	■	■	□	■	■	■	■	■	■	■	■	■	■
TA521	N.A.	■	■	□	N.A.	N.A.	■	N.A.	N.A.	N.A.	N.A.	N.A.	■	■
TA523	N.A.	■	■	□	N.A.	N.A.	■	N.A.	N.A.	N.A.	N.A.	N.A.	■	■
TA524	N.A.	■	■	□	N.A.	N.A.	■	N.A.	N.A.	■	N.A.	N.A.	■	N.A.
TA525	N.A.	■	■	□	N.A.	N.A.	■	N.A.	N.A.	N.A.	N.A.	N.A.	■	N.A.
TA526	N.A.	■	■	□	N.A.	N.A.	■	N.A.	N.A.	N.A.	N.A.	N.A.	■	N.A.
TA527	N.A.	N.A.	N.A.	□	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
TA528	N.A.	N.A.	N.A.	□	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
TA540	N.A.	N.A.	N.A.	□	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
TA541	N.A.	N.A.	N.A.	□	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
TA543	N.A.	N.A.	N.A.	□	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
TA561-RTC	■	■	■	□	■	■	■	■	■	■	■	■	■	■
TA562-RS	■	■	■	□	■	■	■	■	■	■	■	■	■	■
TA562-RS-RTC	■	■	■	□	■	■	■	■	■	■	■	■	■	■
TA563-11	N.N.	N.A.	N.A.	□	N.A.	N.A.	■	■	■	■	■	■	■	■
TA563-9	N.N.	N.A.	N.A.	□	N.A.	N.A.	■	■	■	■	■	■	■	■
TA564-11	N.N.	N.A.	N.A.	□	N.A.	N.A.	■	■	■	■	■	■	■	■
TA564-9	N.N.	N.A.	N.A.	□	N.A.	N.A.	■	■	■	■	■	■	■	■
TA565-11	N.N.	N.A.	N.A.	□	N.A.	N.A.	■	■	■	■	■	■	■	■
TA565-9	N.N.	N.A.	N.A.	□	N.A.	N.A.	■	■	■	■	■	■	■	■
TA566	N.N.	N.A.	N.A.	□	N.A.	N.A.	■	■	■	■	■	■	■	N.A.
TA570	N.N.	N.A.	N.A.	□	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
TA571-SIM	■	N.N.	N.N.	□	N.N.	■	N.N.	N.N.	N.N.	N.N.	N.N.	N.N.	N.N.	■
TB511-ETH	■	■	■	□	■	■	■	■	■	■	■	■	■	■
TB511-ETH-XC	■	■	■	□	■	■	■	■	■	■	■	■	■	■
TB521-ETH	■	■	■	□	■	■	■	■	■	■	■	■	■	■

Additional information
Approvals and certifications

Symbols and legends:
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□ Approval submitted (roadmap available upon request)
◇ Submission planned (roadmap available upon request)
N.A. Not applicable
N.N. Not needed

	Approvals						Shipping classification companies							Others
Symbol														
Abbreviation	CE	cUL		TR	C-Tick	KCC	ABS	BV	DNV	GL	LR	RINA	RMRS	ROHS
Name		Ordinary Locations	Hazardous Locations Class I Div 2	TR CU 004/2011 Formerly known as GOST-R										
TB521-ETH-XC	■	■	■	□	■	■	■	■	■	■	■	■	■	■
TB523-2ETH	■	■	◇	□	■	◇	◇	◇	◇	◇	◇	◇	◇	■
TB541-ETH	■	■	■	□	■	■	■	■	■	■	■	■	■	■
TB541-ETH-XC	■	■	■	□	■	■	■	■	■	■	■	■	■	■
TK501	N.A.	■	■	□	N.A.	N.A.	■	N.A.	N.A.	N.A.	N.A.	■	■	■
TK502	N.A.	■	■	□	N.A.	N.A.	■	N.A.	N.A.	N.A.	N.A.	■	■	■
TK503	■	■	■	□	■	■	■	■	■	■	■	■	■	■
TK504	■	■	■	□	■	■	■	■	■	■	■	■	■	■
TK506	■	■	■	□	■	■	■	■	■	■	■	■	■	■
TU507-ETH	■	■	■	□	■	■	■	■	■	■	■	■	■	■
TU508-ETH	■	■	■	□	■	■	■	■	■	■	■	■	■	■
TU508-ETH-XC	■	■	■	□	■	■	■	■	■	■	■	■	■	■
TU509	■	■	■	□	■	■	■	■	■	■	■	■	■	■
TU510	■	■	■	□	■	■	■	■	■	■	■	■	■	■
TU510-XC	■	■	■	□	■	■	■	■	■	■	■	■	■	■
TU515	■	■	■	□	■	■	■	■	■	■	■	■	■	■
TU516	■	■	■	□	■	■	■	■	■	■	■	■	■	■
TU516-XC	■	■	■	□	■	■	■	■	■	■	■	■	■	■
TU517	■	■	■	□	■	■	■	■	■	■	■	■	■	■
TU518	■	■	■	□	■	■	■	■	■	■	■	■	■	■
TU518-XC	■	■	■	□	■	■	■	■	■	■	■	■	■	■
TU520-ETH	■	■	■	□	■	■	■	■	■	■	■	■	■	■
TU520-ETH-XC	■	■	■	□	■	■	■	■	■	■	■	■	■	■
TU531	■	■	■	□	■	■	■	■	■	■	■	■	■	■
TU532	■	■	■	□	■	■	■	■	■	■	■	■	■	■
TU532-XC	■	■	■	□	■	■	■	■	■	■	■	■	■	■
TU551-CS31	■	■	■	□	■	■	■	■	■	■	■	■	■	■
TU552-CS31	■	■	■	□	■	■	■	■	■	■	■	■	■	■
TU552-CS31-XC	■	■	■	□	■	■	■	■	■	■	■	■	■	■
TU582-S	■	■	■	□	■	■	■	■	■	■	■	■	■	■
TU582-S-XC	■	■	■	□	■	■	■	■	■	■	■	■	■	■

General terms and conditions of sale

1. General.
The terms and conditions contained herein, together with any additional or different terms contained in ABB's Proposal, if any, submitted to Purchaser (which Proposal shall control over any conflicting terms), constitute the entire agreement (the "Agreement") between the parties with respect to the order and supersede all prior communications and agreements regarding the order. Acceptance by ABB of the order, or Purchaser's acceptance of ABB's Proposal, is expressly limited to and conditioned upon Purchaser's acceptance of these terms and conditions, payment for or acceptance of any performance by ABB being acceptance. These terms and conditions may not be changed or superseded by any different or additional terms and conditions proposed by Purchaser to which terms ABB hereby objects. Unless the context otherwise requires, the term "Equipment" as used herein means all of the equipment, parts, accessories sold, and all software and software documentation, if any, licensed to Purchaser by ABB ("Software") under the order. Unless the context otherwise requires, the term "Services" as used herein means all labor, supervisory, technical and engineering, installation, repair, consulting or other services provided by ABB under the order. As used herein, the term "Purchaser" shall include the initial end use of the Equipment and/or services; provided, however, that Paragraph 13(a) shall apply exclusively to the initial end user.

2. Prices.
(a) Unless otherwise specified in writing, all Proposals expire thirty (30) days from the date thereof.
(b) Unless otherwise stated herein, Services prices are based on normal business hours (8 a.m. to 5 p.m. Monday through Friday). Overtime and Saturday hours will be billed at one and one-half (1 1/2) times the hourly rate; and Sunday hours will be billed at two (2) times the hourly rate; holiday hours will be billed at three (3) times the hourly rate. If a Services rate sheet is attached hereto, the applicable Services rates shall be those set forth in the rate sheet. Rates are subject to change without notice.
(c) The price does not include any federal, state or local property, license, privilege, sales, use, excise, gross receipts, or other like taxes which may now or hereafter be applicable. Purchaser agrees to pay or reimburse any such taxes which ABB or its suppliers are required to pay or collect. If Purchaser is exempt from the payment of any tax or holds a direct payment permit, Purchaser shall, upon order placement, provide ABB a copy, acceptable to the relevant governmental authorities of any such certificate or permit.
(d) The price includes customs duties and other importation or exportation fees, if any, at the rates in effect on the date of ABB's Proposal. Any change after that date in such duties, fees, or rates, shall increase the price by ABB's additional cost.

3. Payment.
(a) Unless specified to the contrary in writing by ABB, payment terms are net cash, payable without offset, in United States Dollars, 30 days from date of invoice by wire transfer to the account designated by ABB in the Proposal.
(b) If in the judgment of ABB the financial condition of Purchaser at any time prior to delivery does not justify the terms of payment specified, ABB may require payment in advance, payment security satisfactory to ABB, or may terminate the order, whereupon ABB shall be entitled to receive reasonable cancellation charges. If delivery is delayed by Purchaser, payment shall be due on the date ABB is prepared to make delivery. Delays in delivery or nonconformities in any installments delivered shall not relieve Purchaser of its obligation to accept and pay for remaining installments.
(c) Purchaser shall pay, in addition to the overdue payment, a late charge equal to the lesser of 1 1/2% per month or any part thereof or the highest applicable rate allowed by law on all such overdue amounts plus ABB's attorneys' fees and court costs incurred in connection with collection.

4. Changes.
(a) Any changes requested by Purchaser affecting the ordered scope of work must be accepted by ABB and resulting adjustments to affected provisions, including price, schedule, and guarantees mutually agreed in writing prior to implementation of the change.
(b) ABB may, at its expense, make such changes in the Equipment or Services as it deems necessary, in its sole discretion, to conform the Equipment or Services to the applicable specifications. If Purchaser objects to any such changes, ABB shall be relieved of its obligation to conform to the applicable specifications to the extent that conformance may be affected by such objection.

5. Delivery.
(a) All Equipment manufactured, assembled or warehoused in the continental United States is delivered F.O.B. point of shipment. Equipment shipped from outside the continental United States is delivered F.O.B. United States port of entry. Purchaser shall be responsible for any and all demurrage or detention charges.
(b) If the scheduled delivery of Equipment is delayed by Purchaser or by Force Majeure, ABB may move the Equipment to storage for the account of and at the risk of Purchaser whereupon it shall be deemed to be delivered.
(c) Shipping and delivery dates are contingent upon Purchaser's timely approvals and delivery by Purchaser of any documentation required for ABB's performance hereunder.
(d) Claims for shortages or other errors in delivery must be made in writing to ABB within ten days of delivery. Equipment may not be returned except with the prior written consent of and subject to terms specified by ABB. Claims for damage after delivery shall be made directly by Purchaser with the common carrier.

6. Title & Risk of Loss.
Except with respect to Software (for which title shall not pass, use being licensed) title to Equipment shall remain in ABB until fully paid for. Notwithstanding any agreement with respect to delivery terms or payment of transportation charges, risk of loss or damage shall pass to Purchaser upon delivery.

7. Inspection, Testing and Acceptance.
(a) Any inspection by Purchaser of Equipment on ABB's premises shall be scheduled in advance to be performed during normal working hours.
(b) If the order provides for factory acceptance testing, ABB shall notify Purchaser when ABB will conduct such testing prior to shipment. Unless Purchaser states specific objections in writing within ten (10) days after completion of factory acceptance testing, completion of the acceptance test constitutes Purchaser's factory acceptance of the Equipment and its authorization for shipment.
(c) If the order provides for site acceptance testing, testing will be performed by ABB personnel to verify that the Equipment has arrived at site complete, without physical damage, and in good operating condition. Completion of site acceptance testing constitutes full and final acceptance of the Equipment. If, through no fault of ABB, acceptance testing is not completed within thirty (30) days after arrival of the Equipment at the site, the site acceptance test shall be deemed completed and the Equipment shall be deemed accepted.

8. Warranties and Remedies.
(a) Equipment and Services Warranty. ABB warrants that Equipment (excluding Software, which is warranted as specified in paragraph (d) below) shall be delivered free of defects in material and workmanship and that Services shall be free of defects in workmanship. The Warranty Remedy Period for Equipment (excluding Software, Spare Parts and Refurbished or Repaired Parts) shall end twelve (12) months after installation or eighteen (18) months after date of shipment, whichever first occurs. The Warranty Remedy Period for new spare parts shall end twelve (12) months after date of shipment. The Warranty Remedy Period for refurbished or repaired parts shall end ninety (90) days after date of shipment. The Warranty Remedy Period for Services shall end ninety (90) days after the date of completion of Services.
(b) Equipment and Services Remedy. If a nonconformity to the foregoing warranty is discovered in the Equipment or Services during the applicable Warranty Remedy Period, as specified above, under normal and proper use and provided the Equipment has been properly stored, installed, operated and maintained and written notice of such nonconformity is provided to ABB promptly after such discovery and within the applicable Warranty Remedy Period, ABB shall, at its option, either (i) repair or replace the nonconforming portion of the Equipment or re-perform the nonconforming Services or (ii) refund the portion of the price applicable to the nonconforming portion of Equipment or Services. If any portion of the Equipment or Services so repaired, replaced or re-performed fails to conform to the foregoing warranty, and written notice of such nonconformity is provided to ABB promptly after discovery and within the original Warranty Remedy Period applicable to such Equipment or Services or 30 days from completion of such repair, replacement or re-performance, whichever is later, ABB will repair or replace such nonconforming Equipment or re-perform the nonconforming Services. The original Warranty Remedy Period shall not otherwise be extended.
(c) Exceptions. ABB shall not be responsible for providing working access to the nonconforming Equipment, including disassembly and re-assembly of non-ABB supplied equipment, or for providing transportation to or from any repair facility, all of which shall be at Purchaser's risk and expense. ABB shall have no obligation hereunder with respect to any Equipment which (i) has been improperly repaired or altered; (ii) has been subjected to misuse, negligence or accident; (iii) has been used in a manner contrary to ABB's instructions; (iv) is comprised of materials provided by or a design specified by Purchaser; or (v) has failed as a result of ordinary wear and tear. Equipment supplied by ABB but manufactured by others is warranted only to the extent of the manufacturer's warranty, and only the remedies, if any, provided by the manufacturer
will be allowed.
(d) Software Warranty and Remedies. ABB warrants that, except as specified below, the Software will, when properly installed, execute in accordance with ABB's published specification. If a nonconformity to the foregoing warranty is discovered during the period ending one (1) year after the date of shipment and written notice of such nonconformity is provided to ABB promptly after such discovery and within that period, including a description of the nonconformity and complete information about the manner of its discovery, ABB shall correct the nonconformity by, at its option, either (i) modifying or making available to the Purchaser instructions for modifying the Software; or (ii) making available at ABB's facility necessary corrected or replacement programs. ABB shall have no obligation with respect to any nonconformities resulting from (i) unauthorized modification of the Software or (ii) Purchaser-supplied software or interfacing. ABB does not warrant that the functions contained in the software will operate in combinations which may be selected for use by the Purchaser, or that the software products are free from errors in the nature of what is commonly categorized by the computer industry as "bugs".
(e) THE FOREGOING WARRANTIES ARE EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES OF QUALITY AND PERFORMANCE, WHETHER WRITTEN, ORAL OR IMPLIED, AND ALL OTHER WARRANTIES INCLUDING ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR USAGE OF TRADE ARE HEREBY DISCLAIMED. THE REMEDIES STATED HEREIN CONSTITUTE PURCHASER'S EXCLUSIVE REMEDIES AND ABB's ENTIRE LIABILITY FOR ANY BREACH OF WARRANTY.

9. Patent Indemnity.
(a) ABB shall defend at its own expense any action brought against Purchaser alleging that the Equipment or the use of the Equipment to practice any process for which such Equipment is specified by ABB (a "Process") directly infringes any claim of a patent of the United States of America and to pay all damages and costs finally awarded in any such action, provided that Purchaser has given ABB prompt written notice of such action, all necessary assistance in the defense thereof and the right to control all aspects of the defense thereof including the right to settle or otherwise terminate such action in behalf of Purchaser.
(b) ABB shall have no obligation hereunder and this provision shall not apply to: (i) any other equipment or processes, including Equipment or Processes which have been modified or combined with other equipment or process not supplied by ABB; (ii) any Equipment or Process supplied according to a design, other than an ABB design, required by Purchaser; (iii) any products manufactured by the Equipment or Process; (iv) any patent issued after the date hereof; or (v) any action settled or otherwise terminated without the prior written consent of ABB.
(c) If, in any such action, the Equipment is held to constitute an infringement, or the practice of any Process using the Equipment is finally enjoined, ABB shall, at its option and its own expense, procure for Purchaser the right to continue using said Equipment; or modify or replace it with non-infringing equipment or, with Purchaser's assistance, modify the Process so that it becomes non-infringing; or remove it and refund the portion of the price allocable to the infringing Equipment. THE FOREGOING PARAGRAPHS STATE THE ENTIRE LIABILITY OF ABB AND EQUIPMENT MANUFACTURER FOR ANY PATENT

INFRINGEMENT.
(d) To the extent that said Equipment or any part thereof is modified by Purchaser, or combined by Purchaser with equipment or processes not furnished hereunder (except to the extent that ABB is a contributory infringer) or said Equipment or any part thereof is used by Purchaser to perform a process not furnished hereunder by ABB or to produce an article, and by reason of said modification, combination, performance
or production, an action is brought against ABB, Purchaser shall defend and indemnify ABB in the same manner and to the same extent that ABB would be obligated to indemnify Purchaser under this "Patent Indemnity" provision.

10. Limitation of Liability.
(a) In no event shall ABB, its suppliers or subcontractors be liable for special, indirect, incidental or consequential damages, whether in contract, warranty, tort, negligence, strict liability or otherwise, including, but not limited to, loss of profits or revenue, loss of use of the Equipment or any associated equipment, cost of capital, cost of substitute equipment, facilities or services, downtime costs, delays, and claims of customers of the Purchaser or other third parties for any damages. ABB's liability for any claim whether in contract, warranty, tort, negligence, strict liability, or otherwise for any loss or damage arising out of, connected with, or resulting from this Agreement or the performance or breach thereof, or from the design, manufacture, sale, delivery, resale, repair, replacement, installation, technical direction of installation, inspection, operation or use of any equipment covered by or furnished under this Agreement, or from any services rendered in connection therewith, shall in no case (except as provided in the section entitled "Patent Indemnity") exceed one-half (1/2) of the purchase price allocable to the equipment or part thereof or Services which gives rise to the claim.
(b) All causes of action against ABB arising out of or relating to this Agreement or the performance or breach hereof shall expire unless brought within one year of the time of accrual thereof.
(c) In no event, regardless of cause, shall ABB be liable for penalties or penalty clauses of any description or for indemnification of Purchaser or others for costs, damages, or expenses arising out of or related to the Equipment and/Services. 11. Laws and Regulations. ABB does not assume any responsibility for compliance with federal, state or local laws and regulations, except as expressly set forth herein, and compliance with any laws and regulations relating to the operation or use of the Equipment or Software is the sole responsibility of the Purchaser. All laws and regulations referenced herein shall be those in effect as of the Proposal date. In the event of any subsequent revisions or changes thereto, ABB assumes no responsibility for compliance therewith. If Purchaser desires a modification as a result of any such change or revision, it shall be treated as a change per Article 4. Nothing contained herein shall be construed as imposing responsibility or liability upon ABB for obtaining any permits, licenses or approvals from any agency required in connection with the supply, erection or operation of the Equipment. This Agreement shall be governed by the laws of the State of New York, but excluding the provisions of the United Nations Convention on Contracts for the International Sale of Goods and excluding New York law with respect to conflicts of law. Purchaser agrees that all causes of action against ABB under this Agreement shall be brought in the State Courts of the State of New York, or the U.S. District Court for the Southern District of New York. If any provision hereof, partly or completely, shall be held invalid or unenforceable, such invalidity or unenforceability shall not affect any other provision or portion hereof and these terms shall be construed as if such invalid or unenforceable provision or portion thereof had never existed.

12. OSHA.
ABB warrants that the Equipment will comply with the relevant standards of the Occupational Safety and Health Act of 1970 ("OSHA") and the regulations promulgated thereunder as of the date of the Proposal. Upon prompt written notice from the Purchaser of a breach of this warranty, ABB will replace the affected part or modify it so that it conforms to such standard or regulation. ABB's obligation shall be limited to such replacement or modification. In no event shall ABB be responsible for liability arising out of the violation of any OSHA standards relating to or caused by Purchaser's design, location, operation, or maintenance of the Equipment, its use in association with other equipment of Purchaser, or the alteration of the Equipment by any party other than ABB.

13. Software License.
(a) ABB owns all rights in or has the right to sublicense all of the Software, if any, to be delivered to Purchaser under this Agreement. As part of the sale made hereunder Purchaser hereby obtains a limited license to use the Software, subject to the following: (i) The Software may be used only in conjunction with equipment specified by ABB; (ii) The Software shall be kept strictly confidential; (iii) The Software shall not be copied, reverse engineered, or modified; (iv) The Purchaser's right to use the Software shall terminate immediately when the specified equipment is no longer used by the Purchaser or when otherwise terminated, e.g. for breach, hereunder; and (v) the rights to use the Software are non-exclusive and non-transferable, except with ABB's prior written consent.
(b) Nothing in this Agreement shall be deemed to convey to Purchaser any title to or ownership in the Software or the intellectual property contained therein in whole or in part, nor to designate the Software a "work made for hire" under the Copyright Act, nor to confer upon any person who is not a named party to this Agreement any right or remedy under or by reason of this Agreement. In the event of termination of this License, Purchaser shall immediately cease using the Software and, without retaining any copies, notes or excerpts thereof, return to ABB the Software and all copies thereof and shall remove all machine readable Software from all of Purchaser's storage media.

14. Inventions and Information.
Unless otherwise agreed in writing by ABB and Purchaser, all right, title and interest in any inventions, developments, improvements or modifications of or for Equipment and Services shall remain with ABB. Any design, manufacturing drawings or other information submitted to the Purchaser remains the exclusive property of ABB. Purchaser shall not, without ABB's prior written consent, copy or disclose such information to a third party. Such information shall be used solely for the operation or maintenance of the Equipment and not for any other purpose, including the duplication thereof in whole or in part.

15. Force Majeure.
ABB shall neither be liable for loss, damage, detention or delay nor be deemed to be in default for failure to perform when prevented from doing so by causes beyond its reasonable control including but not limited to acts of war (declared or undeclared), Acts of God, fire, strike, labor difficulties, acts or omissions of any governmental authority or of Purchaser, compliance with government regulations, insurrection or riot, embargo, delays or shortages in transportation or inability to obtain necessary labor, materials, or manufacturing facilities from usual sources or from defects or delays in the performance of its suppliers or subcontractors due to any of the foregoing enumerated causes. In the event of delay due to any such cause, the date of delivery will be extended by period equal to the delay plus a reasonable time to resume production, and the price will be adjusted to compensate ABB for such delay.

16. Cancellation.
Any order may be cancelled by Purchaser only upon prior written notice and payment of termination charges, including but not limited to, all costs identified to the order incurred prior to the effective date of notice of termination and all expenses incurred by ABB attributable to the termination, plus a fixed sum of ten (10) percent of the final total price to compensate for disruption in scheduling, planned production and other indirect costs.

17. Termination.
No termination by Purchaser for default shall be effective unless, within fifteen (15) days after receipt by ABB of Purchaser's written notice specifying such default, ABB shall have failed to initiate and pursue with due diligence correction of such specified default.

18. Export Control.
(a) Purchaser represents and warrants that the Equipment and Services provided hereunder and the "direct product" thereof are intended for civil use only and will not be used, directly or indirectly, for the production of chemical or biological weapons or of precursor chemicals for such weapons, or for any direct or indirect nuclear end use. Purchaser agrees not to disclose, use, export or re-export, directly or indirectly, any information provided by ABB or the "direct product" thereof as defined in the Export Control Regulations of the United States Department of Commerce, except in compliance with such Regulations.
(b) If applicable, ABB shall file for a U.S. export license, but only after appropriate documentation for the license application has been provided by Purchaser. Purchaser shall furnish such documentation within a reasonable time after order acceptance. Any delay in obtaining such license shall suspend performance of this Agreement by ABB. If an export license is not granted or, if once granted, is thereafter revoked or modified by the appropriate authorities, this Agreement may be canceled by ABB without liability for damages of any kind resulting from such cancellation. At ABB's request, Purchaser shall provide to ABB a Letter of Assurance and End-User Statement in a form reasonably satisfactory to ABB.

19. Assignment.
Any assignment of this Agreement or of any rights or obligations under the Agreement without prior written consent of ABB shall be void.

20. Nuclear Insurance – Indemnity.
For applications in nuclear projects, the Purchaser and/or its end user customer shall have complete insurance protection against liability and property damage resulting from a nuclear incident to and shall indemnify ABB, its subcontractors, suppliers and vendors against all claims resulting from a nuclear incident.

21. Resale.
If Purchaser resells any of the Equipment, the sale terms shall limit ABB's liability to the buyer to the same extent that ABB's liability to Purchaser is limited hereunder.

22. Entire Agreement.
This Agreement constitutes the entire agreement between ABB and Purchaser. There are no agreements, understandings, restrictions, warranties, or representations between ABB and Purchaser other than those set forth herein or herein provided.

Contact your local ABB district sales office for warranty and return authorization information

ABB and Baldor Motion Drives, Controllers are processed in New Berlin, WI at the Emmer Street facility.
ABB Rotary Servo Motors are processed in Ft. Smith, AR.
ABB Motion Drives and Controllers are forwarded to Bristol, U.K. for repair.
ABB ACSM1 Motion Drives, PLC and HMI are processed in New Berlin, WI.
The following charts outline the standard warranty periods on active standard Motion Controllers, Servo Drives, Servo Drives, Servo Motors, PLC, HMI products and accessories.

Product category	Warranty period
NextMove Controllers (ES/ESB/e100/ST)	24 months from date of manufacturing
NextMove PCI & PCI-2	24 months from date of manufacturing
MotiFlex e100 (MFE4)	24 months from date of manufacturing
MicroFlex e100 (MFE2)	24 months from date of manufacturing
MicroFlex e150 (E152)	24 months from date of manufacturing
MotiFlex e180 (MFE180)	24 months from date of manufacturing
MicroFlex Analogue (FMH)	24 months from date of manufacturing
300 Series (MDH4, FDH4, FPH4)	24 months from date of manufacturing
100 Series (MDH2, FDH2, FPH2)	24 months from date of manufacturing
Euroamp (EAP)	24 months from date of manufacturing
EuroFlex (EFL)	24 months from date of manufacturing
BSM Rotary Servo Motors	24 months from date of manufacturing
SDM Rotary Servo Motors	24 months from date of manufacturing

Product group	Product family	Warranty period*	Warranty type
High Performance	ACSM1 Motion Drive	12/24	Parts & On-Site Labor**
Programmable Logic Controllers (PLC) and Human Machine Interface (HMI)	AC500 PLC, CP600 HMI	12/24	Replace-Parts Only

* Months after Installation / Months after shipment from New Berlin, WI.
** Parts and On-Site Labor warranty is available as authorized by ABB Technical Support. Travel time and travel cost are not included in this standard warranty coverage.
Contact ABB Drives Technical Support via DrivesSupportLine@US.ABB.com or 800-752-0696, options 1, 1
Bristol, UK Motion Warranty period validity check
The time of manufacturing (year and week) can be identified from the serial number of the product. The serial number can be found on the rating plate and it consists of either 10 or 11 digits.

Serial numbers with 11 digits
The serial number format is **MYYMMDDXXX**, where:
M = Manufacturing location
YY = Year of manufacturing
MM = Month of manufacturing
DD = Day of manufacturing
XXXX = 4-digit running number (starts every day from 0001)

Serial numbers with 10 digits
The serial number format is **MYYWWXXXXX,** where:
M = Manufacturing location
YY = Year of manufacturing
WW = Week of manufacturing
XXXXX = 5-digit running number (starts every week from 00001)

BSM servo motors
The manufactured date (year and week) is identified from the serial number of the product.
The 11-digit serial number is found on the rating plate.
The serial number format is **MYYMMDDXXXX,** where:
M = Manufacturing location
YY = Year of manufacturing
MM = Month of manufacturing
DD = Day of manufacturing
XXXX = 4-digit running number (starts every day from 0001)

SDM servo motors
The manufacturing date can be identified from the serial number of the product.
The 8-digit serial number is found on the rating plate.
The serial number format is **YYMMXXX,** where:
YY = Year of manufacturing
MM = Month of manufacturing
XXXX = 4-digit running number (starts every day from 0001)

ACSM1 motion drive S/N information
The serial number format is **MYYWWXXXXX,** where:
M = Manufacturing location
YY = Year of manufacturing (format 19YY*) and 20YY) *) ACS600 only
WW = Week of manufacturing (01..52)
XXXXX = 5-digit running number (starts every week from 00001) or revision letter (A, B, C, D…) followed by a 4-digit running number (starts every week from 0001)

The first digit of the serial number (M) for products with warranty liability of ABB Oy, Drives start with 1, 4, 8, A, B, C, D, E, F, or J.

PLC and HMI S/N information
PLC Date Code: **YWWY XXXXXXXXXXX**
Y..Y = Year of manufacturing
.WW. = Week of manufacturing
XXXXXXXXXXX = PLC Serial Number
HMI Date Code: **YWWY**
Y..Y = Year of manufacturing
.WW. = Week of manufacturing
XXXXXXXXXXX = HMI Serial Number

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Related ABB literature

Document title	Publication number
ABB Motion Control Brochure	3AUA0000068580 REV D
MicroFlex e150 Servo Drive Flyer	3AUA0000097609
MicroFlex e150 Servo Drive Catalog	Contact Technical Support
MicroFlex e150 Servo Drive Manual	LT0291A06EN
MicroFlex e100 Servo Drive Flyer	3AUA0000116018
MicroFlex Analog Servo Drive Flyer	3AUA0000123110
MotiFlex e100 Servo Drive Flyer	3AUA0000116019
MotiFlex e180 Flyer	3AUA0000168682
MotiFlex e180 User's Manual	3AXD50000019946
MotiFlex e180 Catalog	3AUA0000168683
MotiFlex e180 Quick Installation Guide	3AXD50000017336
MotiFlex e180 Wall Chart	3AXD50000019945
Mint Machine Module	3AUA0000116022
Mint Programmable Motion Drives	3AUA0000123109
ACSM1 Technical Catalog	3AFE68675073
ACSM1 Flyer	3AFE68719780
ABB NextMove e100 Motion Controller Flyer	3AUA0000116020
ABB NextMove ESB-2 Motion Controller Flyer	3AUA0000116021
ABB US Industrial Automation and Motion Catalog	PLC-PHTC02U-EN
ABB KPD200 Operator Panel Flyer	3AUA0000138360
ABB Motion and PLC Training Schedule	Contact factory
AC Induction Low Inertia Motors Catalog	9AKK105767
AC servo motors BSM Series	9AKK106417
ABB AC500-S Safety PLC Brochure	3ADR025011B0201
ABB CP600 series HMI Brochure	1SBC159110B0201
ABB AC500-XC Extreme Conditions PLC Brochure	2CDC125168B0201
ABB Automation Builder Leaflet	3ADR023024B0201
ABB AC500-eCo Starter Kit Leaflet	3ADR025040L0201

Contact us

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Fax: +44 1454 859001

Scan the QR code
and access:

ABB Motion website
www.abb.com/motion

ABB PLC website
www.abb.com/plc

Baldor website
www.baldor.com

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